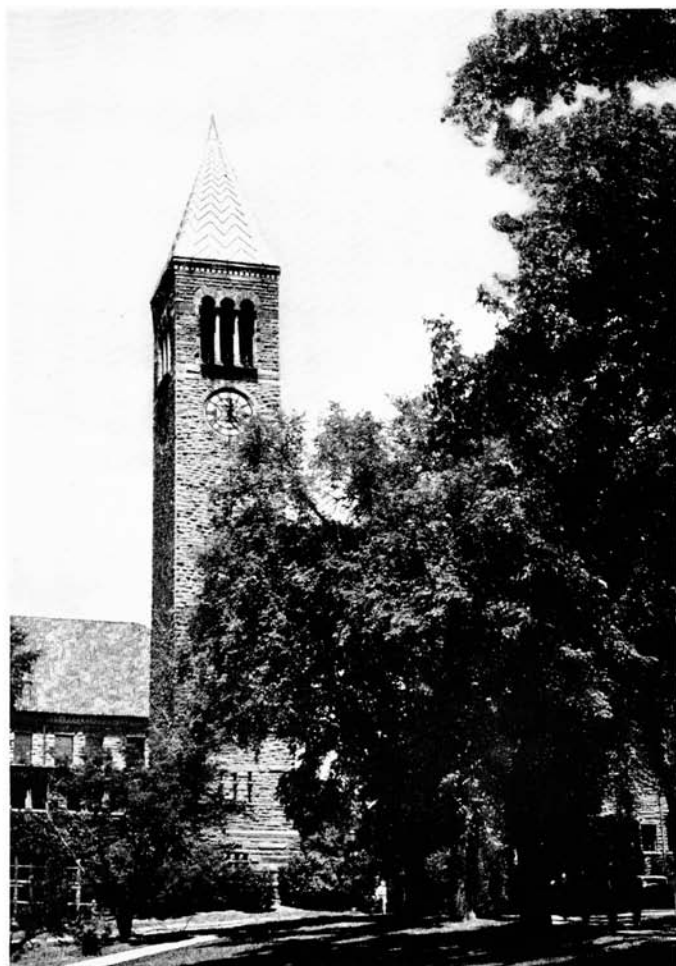
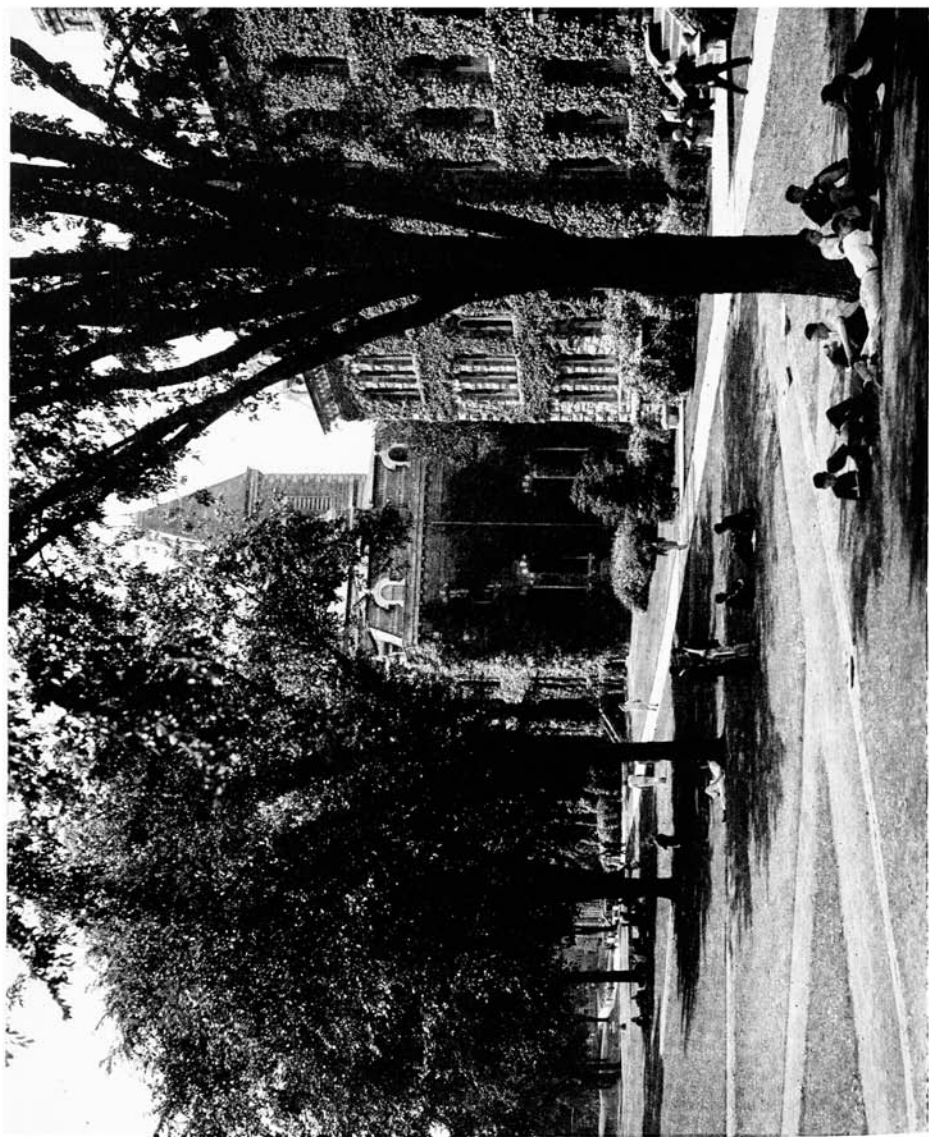


CORNELL UNIVERSITY OFFICIAL PUBLICATION

*Announcement of the*  
**SUMMER SESSION: 1940**  
UNIVERSITY AND STATE SUMMER SCHOOLS



VOLUME 31 : MARCH 1, 1940 : NUMBER 14



*The buildings of the Colleges of Arts and Sciences and of Engineering are grouped about this quadrangle.*

# CORNELL UNIVERSITY OFFICIAL PUBLICATION

VOL. 31

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**SUMMER SESSION**  
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SUMMER SCHOOLS



JULY 8—AUGUST 16

1940

PUBLISHED BY THE UNIVERSITY

ITHACA, NEW YORK

MARCH 1, 1940

## CALENDAR

- JULY 8, MONDAY      Registration, 8:30 a.m.-12:30 p.m., 1:30 p.m.-5 p.m., *Barton Hall* (formerly the Drill Hall). Fees are due for payment at the Treasurer's office, *Morrill Hall*.
- JULY 9, TUESDAY      Instruction begins at time and place announced for each course. Registration is continued at the Registrar's office, *Morrill Hall*.
- JULY 12, FRIDAY      Last day for payment of fees at the Treasurer's office, which closes at 4 p.m., *Morrill Hall*.
- JULY 13, SATURDAY      Instruction continues on this Saturday.
- AUG. 15, THURSDAY      Final examinations begin.
- AUG. 16, FRIDAY      Summer Session ends, 4 p.m.

## SPECIAL EVENTS

- JUNE 17, MONDAY      Summer Field Course in Geology begins, *Spruce Creek, Pennsylvania*.
- JUNE 24, MONDAY      First unit courses in Hotel Administration begin, 9 a.m., *Martha Van Rensselaer Hall*.

## SUMMER SESSION OFFICE

During July and August the Summer Session office is located in Room 245, Goldwin Smith Hall. The office will be open from 8 a.m. to 4 p.m., daily except Saturday; on Saturday the office will close at 12 noon.

During the rest of the year the Summer Session office is located in Room 249 Plant Science Building.

CORNELL UNIVERSITY OFFICIAL PUBLICATION  
PUBLISHED BY CORNELL UNIVERSITY AT ITHACA, N. Y.

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THE SUMMER SESSION carries on the work of the several Schools and Colleges of the University during the summer vacation period. By doing this it provides the opportunity for almost uninterrupted work throughout the year to graduate and undergraduate students regularly enrolled in the University, and at the same time places the facilities of the University at the disposal of many persons who would otherwise be unable to use them. Instruction in the Summer Session is accordingly arranged to meet the particular needs of several groups of students: graduate and undergraduate students enrolled in the regular year who wish to continue their work during the summer; teachers, principals, and superintendents in public and private schools who wish to continue their professional training; professors and instructors in colleges, and teachers in schools who wish to carry on specialized work in their particular fields; students planning to enter the University who wish to complete entrance requirements, or obtain advanced credit at entrance; and other persons who may wish to take advantage of the summer months to further their education.

#### ADMISSION TO THE

SUMMER SESSION      Except as stated in the next paragraph, the Summer Session is open to all persons qualified to do the work of any of the courses offered. Each person must be able to satisfy the instructor in each course he plans to take that he is qualified to do the work of that course. No examinations or applications on special forms are required for admission to the Summer Session.

#### ADMISSION OF UNDERGRADUATES

The following special requirements for admission are made in the case of students registered as undergraduates in Cornell University or in other institutions. Any undergraduate student in Cornell University who has been dropped or is on probation may be admitted only on the recommendation of the authorities of his college. An undergraduate student registered in an institution other than Cornell University must submit a certificate of good standing, signed by the dean or other authority of his college, before admission is granted. Certificate forms may be had upon application to the Director of the Summer Session. Students whose names have been removed from the rolls, and students on probation, are regarded as not in good standing and cannot be admitted.

#### ADMISSION TO THE GRADUATE SCHOOL

For admission to the Graduate School, two requirements are made: (1) the applicant must have received a baccalaureate degree from a college or university of recognized standing, or must have done work equivalent to that re-

quired for such a degree; (2) as judged by his scholastic record, or otherwise, the applicant must show promise of ability to pursue advanced study and research.

A student who wishes to enter the Graduate School should file application for admission, together with all the required supporting credentials, in the Office of the Dean of the Graduate School by June 1 if possible. Application must be made on the formal blanks obtainable from the office of the Graduate School, and must be accompanied by complete and official transcripts of the student's previous training. Applications for admission to the Graduate School for the 1940 Summer Session can not be considered if filed after July 11.

Students planning to apply for admission to the Graduate School should read the section on the Graduate School beginning on page 8. Further information is given in the Announcement of the Graduate School, which will be sent by the Secretary of the University upon request.

## REGISTRATION

Registration for the Session of 1940 will take place on Monday, July 8, in Barton Hall; the hours for registration will be from 8:30 a.m. to 12:30 p.m. and from 1:30 p.m. to 5 p.m. Students are urged to register on this day. Advance registration, either in person or by mail, cannot be arranged.

Registration is required for admission to any of the exercises of the Summer Session. In addition, all women students must register with the Dean of Women. Registration of automobiles to be driven in and about Ithaca by Summer Session students is also required.

### REGISTRATION IN THE

#### GRADUATE SCHOOL

Students who wish to obtain credit toward the advanced degrees of Cornell University for Summer Session work should arrange for admission to the Graduate School by correspondence in advance. They will then, on registration day, register in the Graduate School. Students whose applications and credentials for admission to the Graduate School are received after June 15 will not be able to register in the Graduate School on registration day, July 8. They will register in the Summer Session on that day and, after consulting members of the faculty in their proposed fields of graduate study, begin at once their programs of work. They will register in the Graduate School in Morrill Hall immediately after receiving notice of favorable action on their applications.

### GRADUATES NOT REGISTERING

#### IN THE GRADUATE SCHOOL

Students who hold Bachelor's degrees, but who are not candidates for advanced degrees at Cornell University or elsewhere register in the Summer Session but not in the Graduate School. Students registered

in the Graduate Schools of other institutions and planning to obtain credit toward the advanced degrees from those institutions by their Summer Session work do not register in the Graduate School. Before registering in the Summer Session they should arrange for the crediting of their Summer Session work by the institutions from which they plan to take degrees.

#### SCHEDULES

Except by permission of the Director, all students are required to register for courses amounting to four credit hours as a minimum schedule. The normal schedule is six credit hours and students are advised against registering for more.

#### REGISTRATION

**FOR ATTENDANCE** Under certain circumstances teachers and other mature students, not candidates for degrees, may receive permission to register for some or all of their courses for attendance only. Students so registered are required to attend regularly and to perform the class work of the courses, but they will not be permitted to take the final examinations. They will receive no credit for these courses but may secure certificates of attendance in courses so registered for. Registration for attendance cannot be changed to registration for credit after the second week of the Session.

#### LATE

**REGISTRATION** Students reaching Ithaca on July 9 or later will register at the following times and places: all students, with the Registrar, at his office in *Morrill Hall*, between 9 a.m. and 4 p.m.; graduate students, also with the Dean of the Graduate School at his office in *Morrill Hall*, at the same hours; all women students, also with the Dean of Women, at 1 *Sage Avenue*, between 9 a.m. and 4 p.m.; owners and drivers of automobiles, also with the Campus Patrol Office, between 8:30 a.m. and 4:30 p.m. Graduate students who expect to receive residence credit toward an advanced degree for Summer Session work must register with the Dean of the Graduate School within three days of the opening of the Session. The latest date for such registration in 1940 is July 11.

#### CHANGES OF

**REGISTRATION** All changes of registration after Monday, July 8, must be made in the Summer Session office, 245 Goldwin Smith Hall. Except by permission of the Director, no changes of registration may be made after Friday, July 12.

#### AUDITORS

Admission to classrooms during the Summer Session is restricted to students registered for the Session. A student thus duly registered may occasionally visit any class; but if he wishes to attend

regularly at classes for which he is not registered, he must secure an auditor's permit. Such permits will be granted whenever the student can show a serious purpose in such attendance. Auditors are not required to take part in the work of the courses which they visit, and certificates of attendance cannot be issued to them.

Auditor's permits cannot be issued on registration day; they may be secured on Tuesday, July 9, and later, at the Summer Session office.

**WITHDRAWAL FROM THE SUMMER SESSION** A student may arrange for withdrawal at any time by cancelling his registration at the Summer Session office, 245 Goldwin Smith Hall. In such cases, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal is stated in writing and is satisfactory to the Comptroller and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal, **unless the withdrawal is made before noon on Thursday, July 11.**

**CERTIFICATES FOR WORK DONE** Students in the Summer Session may receive certificates of attendance and of work performed, with grades. Application for them should be made before August 12, and the applicant must leave at the office of the Registrar a large-sized envelope stamped and directed to his home address. The certificate will then be forwarded by mail.

**ACADEMIC CREDIT** All courses offered in the Summer Session, excepting some of the unit courses of one or two weeks in length, are accepted for credit in one or more of the Schools and Colleges of the University, when taken by matriculated students in those Schools and Colleges. No student may receive credit for more than eight semester hours for work done in a single Summer Session.

**COLLEGE OF ARTS AND SCIENCES** To obtain credit towards the Cornell A.B. for work done in a Cornell Summer Session, a student must previously have filed with the University Director of Admissions credentials covering the entrance requirements of the College of Arts and Sciences. He should then, in advance of Summer Session registration, secure the Dean's approval of his selection of courses. For work completed in a single Summer Session credit of not less than four nor more than eight hours will be allowed, but a total of not more than thirty hours of credit may be allowed towards the degree for all



Summer Session work whether done at Cornell or elsewhere. The academic requirements for the degree of Bachelor of Arts are explained in detail in the Announcement of the College of Arts and Sciences.

The Summer Session records of students registered in the College of Arts and Sciences are reviewed by the usual standing committees of the College, and poor records in the Summer Session are liable to the same penalties as in the regular University session.

**COLLEGE OF  
ENGINEERING** Students in the College of Engineering who desire to offer work done in the Summer Session toward requirements for graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Students not yet matriculated in the College of Engineering, but planning to enter it, may obtain information about its requirements by applying to the Secretary of the College of Engineering.

**COLLEGE OF  
ARCHITECTURE** Students in the College of Architecture who desire to offer work done in the Summer Session toward requirements for graduation should consult the Dean of the College of Architecture before registering in the Summer Session.

**STATE COLLEGES OF  
AGRICULTURE AND  
HOME ECONOMICS** Students in the State Colleges of Agriculture and Home Economics must consult with an adviser and secure his approval to the proposed schedule of courses if credit in those Colleges is to be secured. Advisers will be in Barton Hall on registration day, July 8, and may be consulted at their offices on July 9 or later.

**DEPARTMENT OF  
HOTEL ADMINISTRATION** Students in the Department of Hotel Administration who desired to offer work done in the Summer Session towards requirements for graduation should consult Professor Meek of that department before registering in the Summer Session.

**INSTITUTIONS OTHER THAN  
CORNELL UNIVERSITY** The foregoing regulations apply to undergraduate students matriculated at Cornell University. Undergraduates enrolled in other institutions and wishing to have credits earned in the Summer Session applied on their work at such other institutions should, before coming to Ithaca, consult their own college authorities and make all arrangements by them deemed necessary. The Cornell Summer Session can assume no responsibility for the use to be made of credits earned by students thus coming from other places of study. The certificates mentioned above

will show what courses have been taken, the amount of credit in terms of Cornell "hours," and the grades.

## THE GRADUATE SCHOOL

**APPLICATION FOR ADMISSION** A student planning to apply for admission to the Graduate School should write at once to the Dean of the Graduate School for a copy of the Announcement of that School and for the blanks required for applications for admission. The Announcement gives full information about the advanced degrees granted by Cornell University, including the language requirements for admission and for some of the advanced degrees; residence and course requirements; and other information not given in the following sections.

Applications for admission to the Graduate School should be filed by June 1 if possible. After admission to candidacy for a degree, the student may write in advance of the opening of the Summer Session to professors whose courses he plans to take. In this way it is possible to secure advice with regard to major and minor subjects, or fields of concentration, and information about course requirements in specific fields, and to avoid delay and interruption of work at the opening of the Session.

## REQUIREMENTS FOR

**MASTER'S DEGREES** The requirements for the degrees Master of Arts, Master of Science, and Master of Science in Agriculture consist of three parts: (1) a minimum period of residence; (2) completion of such courses and other work (including a thesis under Plan A) as may be specified by a special committee selected by the student to direct his work; (3) competence in scholarship, tested by a final examination.

## RESIDENCE

**REQUIREMENTS** The minimum residence requirement for the Master's degrees mentioned above is two semesters of residence at Cornell University. This minimum requirement may be satisfied by five Summer Sessions of six weeks, or one semester and three Summer Sessions of six weeks, at Cornell University. Candidates for these degrees who are in residence during Summer Sessions are also expected to continue their studies during the year under the direction of the chairman of the special committee in charge of their work.

## SUBJECT MATTER

**REQUIREMENTS** The subject matter requirements for the Master's degrees mentioned above may be satisfied in two ways. Each student, upon admission to candidacy for a Master's degree, selects one of these two plans of work.

## PLAN A

The candidate selecting this plan chooses a major subject of rather limited scope (e.g., French Literature, American History, Botany, Physical Chemistry) to which he plans to devote the greater part of his time. He also selects a minor subject properly related to the major subject. He then selects from the faculty of the Graduate School a member to represent each of his subjects; these constitute his special committee, and the representative of the major subject acts as chairman. The candidate then files with the Dean of the Graduate School a statement of his major and minor subjects approved by the members of his special committee. This statement must be filed within one week after admission to candidacy for a degree. The candidate then and from time to time thereafter confers with the members of his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn. These requirements will include achievement in independent investigation supported by a thesis acceptable to the student's special committee.

It is to be noted that these requirements do not consist primarily of a prescribed number of courses, but of actual achievement in scholarship and research. Consequently only advanced work in each subject or field will be acceptable to the special committee. It may occasionally be desirable for a graduate student to take a course of an elementary character, and this is permitted with the approval of his special committee; but such courses are not considered to be part of the graduate program.

## PLAN B

The candidate selecting this plan chooses a field of concentration of broader scope (e.g., Biological Sciences, Social Studies, English, Foreign Languages, Home Economics), to which he plans to devote at least half of his time. He also selects a group of subjects within which he plans to distribute the remainder of his work. He then selects two members of the faculty to serve as his special committee. One of these, who is chairman of the committee, represents the field of concentration; the other may be chosen from either that field or some related field, depending on the candidate's program. The candidate then files with the Dean of the Graduate School a statement of his field of concentration approved by the members of his special committee. This statement must be filed within two weeks after admission to candidacy for a degree. The candidate then and from time to time thereafter confers with his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn.

The subject matter requirements under this plan include the satisfactory completion of approved studies carrying a minimum of thirty semester hours of credit, of which approximately one half will be in the field of concentration and the rest will be variously distributed with the sanction of his special committee. Work acceptable within

the field of concentration must be devoted in substantial part to studies requiring original investigation, organization and criticism on the part of the student. The candidate is not required to present a formal thesis: but if he does not do so, he is required to complete an expository or critical essay, or a problem in research, to the satisfaction of his special committee.

#### EXAMINATIONS

In addition to course examinations, candidates are required to pass a final examination comprehending the thesis and the major and minor subjects (Plan A) or the field of concentration and distributed studies (Plan B).

#### REQUIREMENTS FOR THE DOCTOR'S DEGREE

The requirements for the Doctor's degree include a reading knowledge of French and German, tested by a special examination. A major subject and two minor subjects are chosen, and a thesis is always required. The residence requirement for the Doctor's degree may, upon recommendation of the student's special committee, be fulfilled in part by attendance during the Summer Session. For this purpose, three Summer Sessions will be regarded as the equivalent of one semester, and five Summer Sessions as the equivalent of one year. However, no more than three semesters of residence credit toward the Doctor's degree may be earned by Summer Session work at Cornell or elsewhere. The last year of required residence must ordinarily be spent in study during the regular sessions at Cornell University.

Candidates for the Doctor's degree should in all cases consult the Announcement of the Graduate School for a more complete statement of the requirements.

#### REGISTRATION FOR RESIDENCE CREDIT

To obtain residence credit in the Graduate School for Summer Session work the student must register both in the Summer Session and in the Graduate School; and such registration should be completed not later than the third day of the Session—in the Session of 1940, not later than July 10.

#### CANDIDATES IN GRADUATE SCHOOL OF EDUCATION

The Graduate School of Education in its administration of graduate work functions as a division of the Graduate School of the University with the same requirements for admission save as to foreign languages. Two professional degrees are offered. (1) The Master of Education (M.Ed.) degree is intended primarily for those who complete, through a newly-established five-year program, the pre-service requirements for admission to teaching. (2) The Master of Science in Education (M.S. in Ed.) degree is intended primarily for those who are already certificated

to teach but who wish to prepare themselves for some specialized form of educational service, such as administration, supervision, or guidance. In general, the program does not demand the extensive research required of a candidate under Plan A of the regular Master's degree and permits a broader selection of courses. For further information regarding the requirements for these degrees, address the Director of the Graduate School of Education, Stone Hall, Cornell University, Ithaca, N. Y.

#### NON-CANDIDATES

A student admitted to the Graduate School as a non-candidate selects one or more advisers to direct his work. He then files with the Dean of the Graduate School not later than one week after registration a statement of the studies he plans to pursue, with the approval of his advisers and of the members of the Graduate Faculty under whom the work is done.

#### RESIDENT DOCTORS

Persons who hold a Doctor's degree or have equivalent standing may, subject to permission from the Dean of the Graduate School, register as resident doctors to carry on advanced work in their special fields of study. Upon recommendation of the Dean of the Graduate School resident doctors are exempt from the payment of tuition and all other fees except laboratory fees. Resident doctors are admitted to advanced courses related to their fields of work, but may not attend other courses without the payment of tuition.

#### FEES

All fees are due and payable at the Treasurer's office in Morrill Hall on registration day, July 8. The last day for payment of fees without penalty is Friday, July 12.

#### TUITION FEES

The tuition fee for the Summer Session is \$55. Students taking unit courses for less than six weeks will pay tuition at the rate of \$11 a week. If unit courses extending through six weeks are taken, the tuition fee will be \$55.

#### MATRICULATION FEE

A matriculation fee of \$10 and an examination book fee of \$1 are charged if the student is registering for the first time in the Graduate School of Cornell University, unless the student, as an undergraduate in Cornell University, has already paid these fees. A student registering in the Summer Session but not in the Graduate School does not pay these fees unless he is at the same time registering for the first time as a candidate for a degree from one of the other Schools or Colleges of the University. For further informa-

tion about these fees, the General Information Number, which may be obtained from the Secretary of the University upon request, should be consulted.

#### OTHER FEES

**AND DEPOSITS** A fee of \$1 is charged to those students who receive from the Campus Patrol Office the privilege of parking motor vehicles on the campus.

A deposit of \$5, refundable when all books have been returned, is required for the withdrawal of books from the University library.

For private instruction in organ, piano, or violin, a special fee of \$2 for a lesson of thirty minutes is charged. For individual instruction in tennis or swimming, a special fee of \$10 is charged.

Laboratory, shop, field-trip, and incidental fees are charged for materials used and for other expenses in certain courses. The amounts of these fees are specified in the descriptions of the courses in which they are charged.

Deposits refundable upon return of apparatus, etc., are required in certain courses. The amounts of these deposits are specified in the descriptions of the courses in which they are charged.

Fees are charged for the use of pianos in the Music building and the organ in Sage Chapel for practice. For the amounts of these fees, see under the description of courses in music.

A fee of 10 cents per period is charged for the use of the University tennis courts and of the University swimming pool in Beebe Lake, adjacent to the campus.

#### OTHER REGULATIONS

##### CONCERNING FEES

If a student withdraws from the Summer Session, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal be stated in writing and be satisfactory to the Comptroller and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal **unless the withdrawal is made before noon on Thursday, July 11.**

Students registering at any time during the last five weeks of the Summer Session are required to pay for the remainder of the term at the rate of twenty per cent of the term's tuition for each week or fraction of a week between the date of registration and the last examination day of the term.

Any student, graduate or undergraduate, except as hereinafter provided, who fails to pay his tuition, fees, and other indebtedness, or if entitled to free tuition fails to claim the same at the Treasurer's office and pay his fees, within the time prescribed by the University is thereby dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an

extension of time to complete payments. For such extension, the student will be assessed a fee of \$2. A reinstatement fee of \$5 will be assessed in the case of any student who is permitted to continue or return to classes after being dropped from the University for default in payments. For reasons satisfactory to the Comptroller and the registrar, which must be presented in writing, the above assessment may be waived in any individual case.

Any tuition fee or other fee may be changed by the Trustees to take effect at any time without previous notice.

## SPECIAL REGULATIONS

**CONDUCT AND SCHOLARSHIP** The Summer Session is conducted under the general regulations governing conduct and scholarship which apply to all sessions of the University. Students are expected to familiarize themselves with dormitory and other rules and to abide by them.

The University rules governing student conduct are:

"A student is expected to show both within and without the University unflinching respect for order, morality, personal honor, and the rights of others. The authority to administer this rule and to impose penalties for its violation is vested in the University Committee on Student Conduct. The rule is construed as applicable at all times, in all places, to all students of the University."

"A student may at any time be removed from the University if, in the opinion of the Committee on Student Conduct, his presence is not conducive to the University's best interests."

The officers of the University also reserve the right to cancel the registration of any student at any time for neglect of scholastic duties.

## AUTOMOBILE REGULATIONS

Because of local traffic and parking conditions it is necessary to require registration of both motor vehicles and their drivers during the Summer Session, as well as during the academic year. Each student who maintains or operates a motor vehicle in or about Ithaca during the Summer Session must register with the Campus Patrol Office at the time of registration for courses. He will at the same time register the motor vehicle which he proposes to drive.

Because of limited parking facilities, it is necessary to restrict the privilege of parking motor vehicles on the campus to those students who apply for and receive special permits. These permits are issued by the Campus Patrol Office to those students whose need for them is greatest, and application for them should be made at the time of registration. The fee for a parking permit is \$1.

## CASHING OF CHECKS

The treasurer of the University accepts checks in settlement of charges payable at his office, but a rule of the Board

of Trustees forbids him to cash any credit instrument, even to the extent of accepting a check or draft in amount greater than the sum due and returning the excess in cash. Students are therefore advised to open an account in an Ithaca bank as soon as they arrive in town, or else provide themselves with travelers' checks, drafts on New York City banks, money orders, or other form of credit instrument such as a bank will cash in the ordinary course of business.

## LIVING QUARTERS

**ROOMS FOR WOMEN** The University has two groups of residential halls for women in which board and room can be obtained during the Summer Session by registered students only. They are:

*Sage College*, which accommodates 175 persons. Here the charge for room and a specified amount of laundry, for the Session, is from \$24 to \$39, according to the size and location of the room. The dining room will not be open. Board may be obtained at the dining rooms and cafeteria in Willard Straight Hall, across the green from Sage Cottage, or at the cafeteria in Martha Van Rensselaer Hall.

*Balch Hall*, which accommodates 318 persons. Here the charge for room, board, and a specified amount of laundry, for the Session, is from \$80 to \$95, according to the size and location of the room.

All women students who are twenty-one years of age and under are required to live in the University dormitories or sorority houses. This regulation applies to any students who are undergraduates at Cornell University or other colleges. Graduate women students may also secure rooms in the same residences or in other houses approved by the Dean of Women. The list of approved houses will be available after June 1 on application to the *Manager of Residential Halls*.

In the residential halls for women the charge for room and board includes dinner and lodging Saturday night, July 6 (not earlier), and all meals to and including breakfast Saturday, August 17.

Members of the Summer Session who lodge outside Balch Hall may obtain table board at that hall for \$9 a week, or \$48 for the six weeks of the Session.

The Head Residents in charge of the halls are glad to know the students, to advise them in illness or other emergency, and to give them whatever information they wish about the University or the town. It is understood that persons living in the halls will conform to the house regulations made for the convenience and comfort of all.

## ROOMS FOR MEN

Men regularly enrolled in the Summer Session can obtain comfortable rooms in the *Residential Halls for Men*, which are thoroughly modern and of fireproof construction.

In the *Residential Halls* the charge for furnished room, including care of the room and laundry of bed linen, is from \$18 to \$30 for the



Session. There are a few suites at a higher rate, and a few rooms on the top floor may be had for less.

A list of private houses offering desirable rooms for men for the Session can be obtained after June 1 by application to the *Manager of Residential Halls, Morrill Hall, Ithaca, N. Y.*

#### APPLICATIONS

**FOR ROOMS** Applications for rooms in any of the residential halls, either for women or for men, and for rooms in the approved houses for women, should be made to the *Manager of Residential Halls, Morrill Hall, Ithaca, N. Y.* Floor plans of the residential halls and other information about the rooms may be obtained, before making applications, by addressing the same office.

#### HOUSES AND APARTMENTS

Information about living quarters in private houses and apartments is also furnished upon request. This includes a list of rooms for women in private houses; a similar list of rooms for men; a list of apartments and private houses for rent; and a map of Ithaca to show the location of these places with reference to the campus. These lists are prepared about June 1 and may be obtained by addressing the *Manager of Residential Halls.*

#### DEPOSITS WITH

**APPLICATIONS** A deposit of five dollars must accompany each application for a room in any of the residential halls; otherwise the application will not be entertained. The rooms are reserved in the order of application. If a room assigned is occupied by the applicant, the amount of the deposit is held until the end of the Session to cover the return of keys and any damage to building or furniture other than ordinary wear and tear, and to insure the completion of the lease. The deposit will be refunded if the applicant gives formal notice to the Manager on or before June 15 that the applicant wishes to withdraw the application.

Checks should be drawn to the order of Cornell University.

#### DINING ROOMS,

**CAFETERIAS** Women who are members of the Summer Session and who reside outside Balch Hall may obtain table board at that hall for \$9 per week or \$48 for the six weeks of the Session. The dining rooms and cafeteria of Willard Straight Hall and the cafeteria in Martha Van Rensselaer Hall are open to both men and women students. Board may be obtained at these places and at cafeterias, dining rooms and restaurants near the campus at \$1.00 to \$1.25 per day.

#### COST OF LIVING

An estimate of the cost of living in Ithaca in the summer can be made by consulting the figures given above. In private

houses rentals vary according to the location. Rooms are rented with the understanding that they will be occupied for the entire Session unless both parties agree otherwise. Table board is generally engaged by the week.

#### MEANS OF

**SELF SUPPORT** Opportunities for students to earn part of their expenses during the Summer Session are rare. Women who wish information on the subject should address Miss R. Louise Fitch, Office of the Dean of Women, Cornell University. Those who desire dining room work may write directly to the Manager of Residential Halls. Men may write to the University Placement Bureau, Willard Straight Hall, Cornell University.

#### HEALTH SERVICE

A health service is provided for students of the Summer Session as well as for those of the regular academic year. Students may consult the physicians of this service in regard to all matters that concern their health.

Those indisposed but still able to attend classes should consult the medical advisers immediately in order that advice may be given and that diagnosis of incipient diseases may be made promptly. For the protection of the University community, it is required that contagious and infectious diseases shall be reported immediately to the medical adviser.

A medical examination is not required of students in the Summer Session, but upon request such routine physical examination will be made for the certification of teachers and for other special purposes.

When the condition of a student's health is such that in the opinion of the University authorities it is unwise for him to remain in the University he may be requested to withdraw.

#### VACCINATION

**CERTIFICATES** Summer Session students are not required to offer a vaccination certificate at registration time unless they are also matriculating in one of the Schools or Colleges of the University. Students entering the Graduate School for the first time matriculate when they register in that School and must present a satisfactory certificate of vaccination.

#### STAFF AND

**SCHEDULE** The Health Service staff for the Summer Session includes men and women physicians with nursing, and clerical assistants. The offices of the Medical Advisers are in the Old Armory opposite Myron Taylor Hall; the office of the Medical Adviser of Women in Sage College is closed during the Summer Session. The medical advisers will keep the following office hours during the Summer Session: Dr. D. F. Smiley, medical adviser for

men, *daily except Sunday, 9 a.m. to 12 a.m.*; Dr. Jennette Evans, medical adviser for women, *daily except Sunday, 10 a.m. to 1 p.m.*; Dr. C. D. Darling, mental hygienist, *daily except Sunday, 11 a.m. to 12 a.m.*; Miss Jennie Butler, registered nurse, *daily except Saturday and Sunday, 9 a.m. to 12 noon and 1 p.m. to 4 p.m.*; *Saturday, 9 a.m. to 1 p.m.*

On Sundays the medical adviser's office will be open for one hour only, *10 a.m. to 11 a.m.*, and only one of the doctors will be on duty.

No charge is made for the services of the medical advisers or of the nurse.

#### HOSPITAL FACILITIES

The University Infirmary will not be open during the Summer Session. Students requiring hospital care will be admitted to the Tompkins County Memorial Hospital, the Conklin Sanatorium, or the Bailey-Jones Hospital under the usual regulations of those institutions.

#### LIBRARIES

THE UNIVERSITY LIBRARY is open on week days from 7:50 A.M. to 10:30 P.M. In this building are the main library, containing about 500,000 volumes, and most of the seminary and special libraries. The main reading room affords accommodations for more than two hundred readers, and contains a selected library of about 8,000 volumes of reference works. Below stairs is the periodical room in which are kept the current numbers of about 500 journals in various fields of knowledge. These rooms are open to all students. Students properly qualified are allowed the use of the seminary rooms and the books in them. The main collection is primarily a library of reference for use in the building. Students are, however, to a limited extent, allowed to take out books for home use. Persons wishing this privilege must make a deposit of \$5, which will be refunded upon the return of all books taken out.

THE LIBRARY OF THE COLLEGE OF AGRICULTURE, in Stone Hall, is open on week days from 9 A.M. to 5 P.M., except Saturday when it is closed at 1 P.M. In it will be found a large collection of bulletins and reports of experiment stations, reference books on agriculture and country life, agricultural periodicals, and the like. The entomological library in Comstock Hall is one of the most complete of its kind in the United States. Nearly all of the departments in which instruction is given have well-selected departmental libraries.

A large library of phonograph and piano recordings, and musical scores to parallel these recordings, is available in the Music Building for the use of the general student body. This library may be used in the Music Building only, during the hours 9 A.M. to 5 P.M. and 7 P.M. to 10 P.M. daily except Sunday, and on Sunday afternoons from 2:00 P.M. to 5:00 P.M.

## RECREATION AND

## PUBLIC EVENTS

WILLARD STRAIGHT HALL, the student union of Cornell University, is the gathering place for students and faculty. It is the social center of the University. The building contains lounges for men and women, activity rooms for student meetings, rooms for games and for classes in folk dancing, the University Theatre where motion pictures and dramatic productions are given each week, a billiards and game room for men, a barber shop for men, a browsing library well stocked with books of general interest, and an art room. On the upper floors of the Hall are sleeping rooms used principally by parents and guests of students, by alumni, and by guests of the University. The dining rooms—main dining room, sandwich room, cafeteria, and soda bar—occupy the entire floor below the main floor.

Willard Straight Hall is for the use of members of the University; but guests of members may secure guest cards for limited periods upon application to the Director of the Hall.

## LECTURES

A public lecture, open to all Summer Session students, is given each Monday evening of the Session. The lecturers are distinguished members of the faculty and the subjects are chosen for their general interest and timeliness. On July 8 Dr. Otto Kinkeldey, Professor of Musicology, will discuss and illustrate "Modern Music"; on July 15 Professor Arthur A. Allen will give an illustrated lecture on "Birds of the Cornell Campus." The later lectures in this series will be announced in the Schedule of Public Events and in the Weekly Calendar. Each Wednesday evening several public lectures are given on subjects of more restricted interest in connection with the work of various departments.

## SAGE CHAPEL

Religious services are conducted in Sage Chapel throughout the academic year by clergymen of various religious denominations. There will be services in the Chapel on five Sundays during the Summer Session, July 14 to August 11 inclusive.

## CONCERTS

A series of five Thursday evening concerts will be given in Bailey Hall at 8:15 P.M. during the first five weeks of the Summer Session. This series will include two organ recitals by Richard T. Gore, University Organist. These Thursday evening concerts are free to all students and members of the faculty.

## CHORUS

All members of the Summer Session who are interested in singing in a chorus of mixed men's and women's voices, are asked to meet in the choir loft of Sage Chapel on Thursday afternoon, July 11,

at five o'clock. At this time a schedule of rehearsals will be arranged in accordance with the desires of those interested. The chorus will be directed by Richard T. Gore, University Organist and Assistant Professor of Music.

#### CHAMBER

**ORCHESTRA** The String Sinfonietta, Ronald Ingalls, conductor, which plays throughout the regular academic year, will rehearse regularly during the Summer Session and will play one concert. Members of the Summer Session who wish to join this organization should apply to Professor Ingalls at Barton Hall on Monday, July 8, or at his office in the Music Building on Wednesday, July 10.

#### SUMMER

**THEATRE** During the Summer Session weekly performances are given by the Summer Theatre Company on Friday and Saturday evenings, beginning July 12. The performances are given in the theatre of Willard Straight Hall; an admission charge is made. The plays to be produced will be announced each week in the weekly Calendar.

The plays of the Summer Theatre Company are directed by Professors Drummond and Stainton, assisted by other members of the Direction Staff. Regularly enrolled members of the courses in Dramatic Production, and no others, may compete for places in the casts and production staffs; detailed announcements will be made in the various classes.

#### MODERN

**ART FILMS** Selections from Modern Art Films will be presented weekly by the Summer Theatre. Noteworthy recent foreign films are included in the series. Tickets for the series will be on sale in Willard Straight Hall.

#### DEMONSTRATIONS AT

**THE OBSERVATORY** A series of demonstration lectures, illustrated by observations with the 12-inch telescope when the weather permits, will be given on Monday, Wednesday, and Friday evenings throughout the Session at the Fuertes Observatory. During the first week of the Session these lectures will be open to all registered students; admission after the first week will be by tickets which may be obtained at the Summer Session office. For further information see pages 56 and 57.

#### EXCURSIONS

Excursions in connection with the work of certain departments are made to many points of interest. Some of them are open to all members of the Summer Session. Especially noteworthy are the excursions conducted by the Department of Geography and Geology

to Enfield Glen, to Watkins Glen, and to Lake Ontario. Details of the plans for these are given on pages 54 and 55.

Certain field trips conducted by members of the Department of Botany are open to interested persons upon application. Further information may be obtained at the Summer Session office.

#### DANCES

Each Saturday evening a dance, open to all members of the Summer Session, is held in Willard Straight Hall. Instruction in folk dancing and social dancing is given each week by competent instructors.

#### SPORTS

Tennis courts, conveniently located about the campus, are available for use for a small fee. Class instruction and private lessons in tennis are offered by members of the Department of Physical Education; tennis, badminton and golf tournaments and a swimming meet are arranged as part of the recreational program of the Summer Session. A gorge at one end of Beebe Lake, on the campus, forms a natural swimming pool, where a guard is on duty every day of the Session. Other excellent swimming pools and beaches are available in the three state parks which are located within 30 minutes driving distance from the University. For further information about outdoor recreational activities, see page 46.

#### SCHEDULE OF

**PUBLIC EVENTS** A schedule of the public events of the Summer Session is printed about June 1; a copy will be sent upon request. Copies will also be available on registration day.

#### WEEKLY

**CALENDAR** A weekly calendar is issued on each Saturday of the Summer Session. This carries all official notices and gives details of all public events, such as concerts, lectures, excursions, etc. Copies are posted on all bulletin boards and students are advised to consult them for further information about such events. Copies of the Calendar may be obtained upon request at the Summer Session office, at the desk of Willard Straight Hall, and at other University offices.

#### ROUTES TO

**ITHACA** Ithaca can be reached from New York City by either the Delaware, Lackawanna & Western Railroad or the Lehigh Valley Railroad. On both roads there are good trains carrying Pullman cars, on the Lackawanna by day, on the Lehigh Valley by day and by night. Passengers from the west reach Ithaca by way of the Lehigh Valley Railroad from Buffalo. From stations on the Boston & Albany Railroad, the shortest route to Ithaca is by

way of Syracuse and Auburn. From Philadelphia, and from Baltimore, Washington, and the south by way of the Baltimore & Ohio, the Philadelphia & Reading connects with the Lehigh Valley at Bethlehem. From stations on the Erie, connections with Ithaca can be made by the Lackawanna at Owego. Ithaca has connections with the New York Central at Geneva, Auburn, and Canastota.

Several of the more important bus lines either run through Ithaca or connect at nearby towns with lines into Ithaca. Further information about routes can best be secured at local bus terminals.

# OFFICERS AND FACULTY

## OFFICERS

EDMUND EZRA DAY, B.S., M.A., Ph.D., LL.D., President of the University.  
EUGENE FRANCIS BRADFORD, Ph.D., Registrar and Director of Admissions.  
R. LOUISE FITCH, M.A., Dean of Women.  
LOREN C. PETRY, Ph.D., Director of the Summer Session and Chairman of the Administrative Board.

## ADMINISTRATIVE BOARD

JULIAN EDWARD BUTTERWORTH, Ph.D., Director of the Graduate School of Education and Professor of Rural Education.  
WILLIAM WELCH FLEXNER, Ph.D., Assistant Professor of Mathematics.  
HOWARD BAGNALL MEEK, Ph.D., Professor of Hotel Administration.  
BENTON SULLIVAN MONROE, Ph.D., Acting Dean of the Graduate School and Professor of English.  
OSCAR DIEDRICH VON ENGELN, Ph.D., Professor of Physical Geography.

## FACULTY

RALPH PALMER AGNEW, Ph.D., Professor of Mathematics.  
HARRY DARKES ALBRIGHT, Ph.D., Instructor in Public Speaking.  
ARTHUR AUGUSTUS ALLEN, Ph.D., Professor of Ornithology.  
ELSA GUERDRUM ALLEN, Ph.D., Instructor in Ornithology.  
RAYMOND CLAYTON ALLEN, Ph.D., Instructor in Floriculture.  
EUGENE N. ANDERSON, Ph.D., Professor of History, American University, Washington, D. C.  
HOWARD RICHMOND ANDERSON, Ph.D., Associate Professor of Education.  
WALFRID ALBIN ANDERSON, Ph.D., Professor of Rural Sociology.  
ALBERT LEROY ANDREWS, Ph.D., Professor of Germanic Philology.  
PHYLLIS BETTS ARLT, M.A., Assistant in Public Speaking.  
LAWRENCE ASHLEY, Ph.D., Chief of the Division of Vocational Guidance, Board of Education, Yonkers, N. Y.  
ROBERT FOX BACHER, Ph.D., Assistant Professor of Physics.  
KERSTIN THORIN BAIRD, M.A., Instructor in Physical Education.  
WILLIAM CYRUS BALLARD, JR., M.E. (in E.E.), Professor of Electrical Engineering.  
JOHN ROBERT BANGS, JR., M.E., Professor of Administrative Engineering.  
ARTHUR SEYMOUR BATES, M.A., Instructor in French.  
M. NOBLE BATES, M.A., Assistant in Histology and Embryology.  
THOMAS LEVINGSTON BAYNE, Ph.D., Assistant Professor of Rural Education.  
WILLIAM J. BECKER, M.A., Instructor in Industrial Arts, Boynton Junior High School, Ithaca, N. Y.  
MADISON BENTLEY, Ph.D., Consultant for Psychology, Library of Congress, Washington, D. C.; Professor of Psychology, Emeritus.  
MORRIS GILBERT BISHOP, Ph.D., Professor of French.  
BEULAH BLACKMORE, B.S., Professor of Home Economics.  
RUTH CLOSSON BOICOURT, B.S., Instructor in Home Economics.  
SAMUEL LATIMER BOOTHROYD, M.S., Professor of Astronomy and Geodesy.  
URIE BRONFENBRENNER, Ed.M., Assistant in Harvard Psycho-Educational Clinic, Cambridge, Mass.  
WILLIAM O. BROWN, Ph.D., Assistant Professor of Sociology, Howard University, Washington, D. C.  
WILLIAM F. BRUCE, Ph.D., Assistant Professor of Chemistry.  
OLGA PAULINE BRUCHER, M.A., Assistant Professor of Home Economics.  
HELEN DUDLEY BULL, M.D., Professor of Home Economics.  
JAMES DABNEY BURFOOT, JR., Ph.D., Assistant Professor of Geology.



- EARL NELSON BURROWS, M.C.E., Assistant Professor of Structural Engineering.  
JULIAN EDWARD BUTTERWORTH, Ph.D., Professor of Rural Education and Director of the Graduate School of Education.  
WILLOUGHBY MILLER CADY, Ph.D., Instructor in Physics.  
HARRY CAPLAN, Ph.D., Professor of Classics.  
WALTER BUCKINGHAM CARVER, Ph.D., Professor of Mathematics.  
MARTIN PAUL CATHERWOOD, Ph.D., Professor of Public Administration.  
CHARLES E. CLADEL, M.S., Instructor in Hotel Accounting.  
STEPHEN FARRELL CLEARY, M.M.E., Assistant Professor of Engineering Drawing.  
JACOB ROLAND COLLINS, Ph.D., Professor of Physics.  
JOHN COURTNEY, M.S., Assistant Professor of Hotel Accounting.  
OTIS FREEMAN CURTIS, Ph.D., Professor of Botany.  
RALPH WRIGHT CURTIS, M.S.A., Professor of Ornamental Horticulture.  
JONATHAN WADHAMS CURVIN, Ph.D., Assistant Professor of Public Speaking, Hobart College, Geneva, N. Y.  
GEORGE IRVING DALE, Ph.D., Professor of Romance Languages and Literatures.  
CHARLES DOUGLAS DARLING, M.D., Assistant Professor of Hygiene.  
ADAM CLARKE DAVIS, JR., M.E., Professor of Experimental Engineering.  
PETER J. W. DEBYE, Ph.D., Director of the Kaiser Wilhelm Institute of Physics, Berlin, Germany.  
CLARENCE RAYMOND DIXON, B.S., Director of Industrial Arts, Ithaca Public Schools, Ithaca, N. Y.  
ALEXANDER M. DRUMMOND, M.A., Professor of Public Speaking and Director of the University Theatre.  
CHARLES JEROME DUFFY, Ph.D., Instructor in English.  
CHARLES LOVE DURHAM, Ph.D., Professor of Latin.  
HOWARD SPENCER DYE, Assistant in Tennis.  
ARTHUR JOHNSON EAMES, Ph.D., Professor of Botany.  
RUSSELL BRAYTON EATON, Ph.D., Instructor in Chemistry.  
LYNN ARTHUR EMERSON, Ph.D., Professor of Industrial Education.  
MARK ENTORF, B.A., Associate Professor of Home Economics.  
JENNETTE EVANS, M.D., Assistant Professor of Hygiene and Medical Adviser of Women.  
CLARENCE FAILOR, Ph.D., Director of Vocational Guidance and Placement Service, Proviso Township High School, Maywood, Ill.  
EMERY N. FERRISS, Ph.D., Professor of Rural Education.  
FREDERICK ARTHUR FICKEN, Ph.D., Instructor in Mathematics.  
HARRY MORTON FITZPATRICK, Ph.D., Professor of Mycology.  
ERNEST S. FORD, M.S., Instructor in Botany.  
MARIE BELLE FOWLER, M.A., Professor of Home Economics.  
ALLAN CAMERON FRASER, Ph.D., Professor of Plant Breeding and Genetics.  
FRANK SAMUEL FREEMAN, Ed.D., Professor of Education.  
WALTER HOYT FRENCH, Ph.D., Assistant Professor of English.  
PAULINE WELLS FULLER, B.S., Assistant Professor of Home Economics.  
ROBERT GARD, M.A., Assistant in Public Speaking.  
PEARL GARDNER, Ph.D., Instructor in Rural Education.  
PAUL WALLACE GATES, Ph.D., Assistant Professor of American History.  
PERRY WEBSTER GILBERT, B.A., Assistant in Zoology.  
JAMES WALLACE GIVENS, Ph.D., Instructor in Mathematics.  
ROSALIE GODFREY, M.S., Business Director of Residence Halls, University of Texas, Austin, Texas.  
JAMES NORMAN GOODIER, D.Sc., Acting Professor of Mechanics.  
EVA LUCRETIA GORDON, M.S., Assistant in Rural Education.  
RICHARD TAYLOR GORE, M.A., Assistant Professor of Music and University Organist.  
JACOB M. GRAY, M.C.E., Chairman of the Department of Technical Drafting and Design, Technical High School, Brooklyn, N. Y.  
H. VICTOR GROHMANN, B.S., Specialist in Hotel Advertising.  
WILLIAM JOHN HAMILTON, JR., Ph.D., Assistant Professor of Zoology.  
GEORGE R. HANSELMAN, M.E., Assistant Professor of Administrative Engineering.

- KATHARINE WYCKOFF HARRIS, M.A., Professor of Home Economics.  
JOHN A. HARTELL, B.Arch., Assistant Professor of Architecture.  
WALTER EDWARD HEMING, Ph.D., Instructor in Zoology.  
GRACE MILDRED HENDERSON, M.S., Instructor in Home Economics.  
FRANK FORREST HILL, Ph.D., Professor of Land Economics.  
JAMES LYNN HOARD, Ph.D., Assistant Professor of Chemistry.  
THOMAS C. HOLY, Ph.D., Professor of Education and Research Associate in Bureau of Educational Research, Ohio State University, Columbus, Ohio.  
JOSEPH DOUGLAS HOOD, Ph.D., Acting Assistant Professor of Biology.  
EDWIN RAYMOND HOSKINS, Ph.D., Assistant Professor of Rural Education.  
ALIDA SHANGLE HOTCHKISS, Ph.D., Assistant Professor of Home Economics.  
HARLEY EARL HOWE, Ph.D., Professor of Physics.  
ERIC VAIL HOWELL, M.C.E., Assistant Professor of Mechanics.  
MELVIN LOVELL HULSE, Ph.D., Assistant Professor of Education.  
MARGARET LOUISE HUMPHREY, M.A., Assistant Professor of Home Economics.  
CHESTER JERMAIN HUNN, B.S.A., Assistant Professor of Ornamental Horticulture.  
RONALD INGALLS, B.Mus., Assistant Professor of Music.  
JOSEPH OLMSTEAD JEFFREY, M.M.E., Assistant Professor of Experimental Engineering.  
BURTON AARON JENNINGS, B.S., Professor of Agricultural Engineering.  
PHILIP GUSTAV JOHNSON, Ph.D., Assistant Professor of Rural Education.  
BURTON WADSWORTH JONES, Ph.D., Assistant Professor of Mathematics.  
RIVERDA HARDING JORDAN, Ph.D., Professor of Education.  
LESLIE GORDON JOYNER, B.Chem., Assistant in Chemistry.  
PETER PAUL KELLOGG, Ph.D., Assistant Professor of Ornithology.  
EARLE H. KETCHAM, Ph.D., Professor of Political Science, Syracuse University, Syracuse, N. Y.  
BENJAMIN FREEMAN KINGSBURY, Ph.D., Professor of Histology and Embryology.  
CATHERINE KNAPP, Teacher in the Belle Sherman School, Ithaca, N. Y.  
GEORGE KREEZER, Ph.D., Assistant Professor of Psychology.  
JOHN IRVING LACEY, B.A., Assistant in Psychology.  
OLIVER LILBURN LACEY, B.A., Assistant in Psychology.  
MAX LUDWIG LAISTNER, M.A., Professor of Ancient History.  
ALBERT WASHINGTON LAUBENGAYER, Ph.D., Professor of Chemistry.  
VIVIAN STREETER LAWRENCE, Ph.D., Assistant Professor of Mathematics.  
JACQUES LECLERCQ, Ph.D., Instructor in French, Queens College, Kingston, Ontario, Canada.  
ELBERT LENROW, M.A., Head of the English Department, Fieldston School, New York City; and Lecturer on World Literature, School for Social Research, New York City.  
JOHN COLBY LEWIS, M.F.A., Instructor in Public Speaking and Technical Director of the University Theatre.  
WILLIAM ABBETT LEWIS, Jr., Ph.D., Director of the School and Professor of Electrical Engineering.  
GORDON SCOTT LITTLE, Coach of Swimming.  
FRANKLIN ASBURY LONG, Ph.D., Instructor in Chemistry.  
CHARLES T. LORAM, Ph.D., Sterling Professor of Education and Chairman and Director of Graduate Studies, Department of Race Relations, Yale University, New Haven, Conn.  
CLARK MILLS MCBURNEY, M.A., Instructor in French.  
WALTER COX MCCRONE, B.CHEM., Assistant in Chemistry.  
HOWARD B. MEEK, Ph.D., Professor of Hotel Administration.  
FREDERICK GEORGE MARCHAM, Ph.D., Professor of English History.  
CLYDE WALTER MASON, Ph.D., Professor of Chemistry.  
ROBERT MATHESON, Ph.D., Professor of Economic Entomology.  
OSCAR MAURER, Ph.D., Instructor in English.  
TERRELL B. MAXFIELD, B.S., Lecturer in Hotel Accounting.  
CHARLOTTE B. MERRELL, B.S., Formerly Assistant Professor of Institution Management.

- WILLIAM TAYLOR MILLER, Ph.D., Instructor in Chemistry.  
 ARTHUR JACKSON MIX, Ph.D., Professor of Botany, Kansas University, Lawrence, Kansas.  
 AILEEN W. MOEN, Teacher in the Central School, Van Hornesville, N. Y.  
 BENTON SULLIVAN MONROE, Ph.D., Professor of English and Acting Dean of the Graduate School.  
 HELEN MONSCH, M.A., Professor of Home Economics.  
 ROYAL EWERT MONTGOMERY, Ph.D., Professor of Economics.  
 CLYDE B. MOORE, Ph.D., Professor of Rural Education.  
 RICHARD ALLAN MORDOFF, Ph.D., Professor of Meteorology.  
 GRACE EVELYN MORIN, M.A., Professor of Home Economics.  
 CHARLES L. MOSHER, Ph.B., Chief, Bureau of Child Accounting and Attendance, State Education Department, Albany, N. Y.  
 JOHN ROBERT MOYNIHAN, M.M.E., Assistant Professor of Experimental Engineering.  
 WALTER CONRAD MUENSCHER, Ph.D., Professor of Botany.  
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 HENRY ALONZO MYERS, Ph.D., Assistant Professor of English.  
 CHARLES MERRICK NEVIN, Ph.D., Professor of Geology.  
 MELVIN LORREL NICHOLS, Ph.D., Professor of Chemistry.  
 EDWIN NUNGEZER, Ph.D., Assistant Professor of English.  
 PAUL MARTIN O'LEARY, Ph.D., Professor of Economics.  
 ROY A. OLNEY, Ph.D., Assistant Professor of Rural Education.  
 WILLIAM PABST, B.S., Chairman of the Department of Applied Electricity, Brooklyn Technical High School, Brooklyn, N. Y.  
 CHARLES EDMUND PALM, Ph.D., Professor of Entomology.  
 ELMER A. PALMATIER, M.S., Assistant in Botany.  
 LYMAN GEORGE PARRATT, Ph.D., Assistant Professor of Physics.  
 EGON PETRI, Visiting Lecturer in Music.  
 HOWARD CHARLES PERKINS, M.E., Assistant Professor of Mechanics of Engineering.  
 LOREN CLIFFORD PETRY, Ph.D., Professor of Botany and Director of the Summer Session.  
 CATHERINE JANE PERSONIUS, Ph.D., Assistant Professor of Home Economics.  
 JOSEPH PULLMAN PORTER, M.S.A., Acting Professor of Ornamental Horticulture.  
 FRANK H. RANDOLPH, M.E., Professor of Institutional Engineering.  
 JOHN FITZ RANDOLPH, Ph.D., Assistant Professor of Mathematics.  
 PHILIP ADNA READIO, Ph.D., Professor of Economic Entomology.  
 ANNA YEOMANS REED, Ph.D., Lecturer in Guidance and Personnel in the Graduate School of Education.  
 KATHERINE REEVES, B.A., Assistant Professor of Home Economics.  
 DOROTHY DEANE ROBERTS, M.S., Instructor in Home Economics.  
 ETHEL COWLES ROBERTS, B.A., Instructor in Rural Education.  
 LEMO DENNIS ROCKWOOD, Ph.D., Professor of Home Economics.  
 EDWARD M. RODEN, M.A., Instructor in Industrial Arts, Eastwood High School, Syracuse, N. Y.  
 LOUIS MICHAEL ROEHL, B.S., Professor of Farm Mechanics.  
 NANCY MCNEAL ROMAN, M.A., Professor of Home Economics.  
 VIRGIL RUEGSEGGER, Ph.D., District Principal, Northwest District, Ithaca, N. Y.  
 THOMAS ARTHUR RYAN, Ph.D., Instructor in Psychology.  
 DWIGHT SANDERSON, Ph.D., Professor of Rural Sociology.  
 HEINRICH SCHNEIDER, Ph.D., Assistant Professor of German.  
 RUTH JEAN SCOTT, B.S., Assistant Professor of Home Economics.  
 RUTH SEGOLSON, M.A., Instructor in Household Art, University of Minnesota, Minneapolis, Minn.  
 WILLIAM ARVID SELEEN, B.S., Assistant in Bacteriology.  
 JAMES MORGAN SHERMAN, Ph.D., Professor of Dairy Industry.  
 ARNOLD SHIRCLIFFE, Wrigley Building Restaurant, Chicago, Ill.  
 DEAN FRANKLIN SMILEY, M.D., Professor of Hygiene and Medical Adviser.

- LLOYD PRESTON SMITH, Ph.D., Professor of Physics.  
LUCILLE GRANT SMITH, Ph.D., Instructor in Floriculture and Ornamental Horticulture.  
RUTH HENDERSON SMITH, M.S., Instructor in Home Economics.  
WILLIAM ARTHUR SMITH, Ph.D., Assistant Professor of Rural Education.  
THEODORE SNOOK, Ph.D., Assistant Professor of Histology, Syracuse University, Syracuse, N. Y.  
LELAND SPENCER, Ph.D., Professor of Marketing.  
WALTER HUTCHISON STANTON, Ph.D., Assistant Professor of Public Speaking and Assistant Director of the University Theatre.  
CLIFFORD NICKS STARK, Ph.D., Professor of Bacteriology.  
CARL STEPHENSON, Ph.D., Professor of History.  
ROLLAND MACLAREN STEWART, Ph.D., Professor of Rural Education.  
JOSEPHINE STRODE, M.A., Instructor in Rural Sociology.  
EVERETT MILTON STRONG, B.S. in E.E., Assistant Professor of Electrical Engineering.  
CHARLES KENNETH THOMAS, Ph.D., Assistant Professor of Public Speaking.  
HAROLD W. THOMPSON, Ph.D., Professor of English.  
FLORA M. THURSTON, M.S., Professor of Home Economics Education.  
DIRAN HAGOPOS TOMBOULIAN, Ph.D., Instructor in Physics.  
LEONARD CHURCH URQUHART, C.E., Professor of Structural Engineering.  
WILLIAM EMILE UTTERBACK, Ph.D., Instructor in Public Speaking, College of the City of New York.  
JOHN HOWARD VANDYKE, M.A., Assistant in Histology and Embryology.  
OSCAR DIEDRICH VON ENGELN, Ph.D., Professor of Physical Geography.  
RUSSELL HALDERMAN WAGNER, Ph.D., Assistant Professor of Public Speaking.  
ROBERT JOHN WALKER, Ph.D., Assistant Professor of Mathematics.  
ETHEL BUSHNELL WARING, Ph.D., Professor of Home Economics.  
STANLEY WHITSON WARREN, Ph.D., Assistant Professor of Farm Management.  
KENNETH L. WASHBURN, M.F.A., Assistant Professor of Fine Arts.  
ELLEN KEMP WATSON, B.S., Assistant in Home Economics.  
PAUL JOHN WEAVER, B.A., Professor of Music.  
HARRY PORTER WELD, Ph.D., Professor of Psychology.  
JOHN WEST WELLS, Ph.D., Instructor in Geology, Ohio State University, Columbus, Ohio.  
KENDALL CRITTENDEN WHITE, E.E., Instructor in Administrative Engineering.  
RALPH KIRBY WHITE, Ph.D., Instructor in Education.  
HERBERT AUGUST WICHELNS, Ph.D., Professor of Public Speaking.  
KARL MCKAY WIEGAND, Ph.D., Professor of Botany.  
HAROLD S. L. WIENER, Ph.D., Instructor in English.  
DELPHA WIESENDANGER, M.S., Assistant Professor of Home Economics.  
GEORGE KISSAM WILLIAMS, M.M.E., Instructor in Mechanics of Engineering.  
GARFF BELL WILSON, M.A., Associate Professor of Public Speaking, Humboldt State College, California.  
ANDREW LEON WINSOR, Ph.D., Professor of Rural Education.  
JOHN PALEN WOOD, M.E.E., Instructor in Electrical Engineering.  
ETHEL DOROTHY WORMAN, M.A., Assistant in Public Speaking.  
ALBERT HAZEN WRIGHT, Ph.D., Professor of Zoology.  
FORREST BLYTHE WRIGHT, Ph.D., Assistant Professor of Agricultural Engineering.  
BENJAMIN PERCY YOUNG, Ph.D., Assistant Professor of Zoology.  
CHARLES VAN PATTEN YOUNG, B.A., Professor of Physical Education.

# COURSES OF INSTRUCTION

## ARRANGEMENT OF SUBJECTS

Subjects of instruction are grouped into eleven divisions; in each division subjects of instruction are arranged alphabetically. The index at the end of this Announcement should be referred to for subjects not readily found.

## CLASS SCHEDULES

In most courses of instruction, classes will meet five times a week, on each week day except Saturday. Such classes will meet on July 13, the first Saturday of the Session, but on no other Saturdays. Class periods begin on the hour unless otherwise indicated, and are fifty minutes in length. Laboratory periods are of various lengths, as indicated in the description of courses which include laboratory work. The meeting place of each course is given in the description of the course. Goldwin Smith Hall is indicated by the symbol *GS*: all other buildings are named.

## UNDERGRADUATE AND GRADUATE COURSES

There is, in general, no sharp distinction at Cornell University between undergraduate and graduate courses. In this Announcement each course is marked immediately after the title in one of three ways:

**Undergraduate.** These courses are intended primarily for undergraduates. Students registered in the Graduate School of Cornell University will not receive credit for these courses toward an advanced degree unless such credit is specifically recommended by the special committee in charge of their work.

**Graduate.** These courses are intended primarily for students who are candidates for advanced degrees, and for teachers and others who wish certification to accrediting agencies for work done at the graduate level. Undergraduates with adequate preparation may register for these courses only after receiving permission from the instructors in charge.

**Undergraduate and graduate.** These courses are open to graduates and advanced undergraduates. Graduates registering for these courses who are candidates for advanced degrees or who wish certification to accrediting agencies for work done at the graduate level must indicate on their registration blanks their intention to complete the course at the graduate level and must be prepared to do any additional work that may be required.

## FINE ARTS

### DRAWING AND PAINTING

The following courses correspond generally to those of the regular session of the University. Classes are small enough to permit individual instruction adapted to the students' needs. The advanced student is given work and criticism according to his ability. All materials needed may be obtained in Ithaca.

An illustrated folder describing the work of this department in detail, and especially as it is conducted in the regular session, will be sent upon application to the College of Architecture, Cornell University, Ithaca, New York.

In all courses one hour credit will be given for each five hours of laboratory work per week. Credit hours to be arranged upon registration.

A student may register repeatedly in successive Summer Sessions for credit in courses S 3, S 6, S 7, and S 8.

Courses will be given by Assistant Professors HARTELL and WASHBURN.

**S 1. Elementary Drawing.** Undergraduate; credit two to four hours. Daily except Sat., 8-12. *Third floor, Franklin.*

This course is for beginners in drawing. There will be discussions of the elementary principles of representative drawing and exercises in pencil and charcoal.

**S 3. Drawing and Painting from the Human Figure.** Undergraduate; credit two to four hours. Daily except Sat., 10-12. *Third floor, Franklin.*

Study from living model in charcoal or in oil. Course S 1 or its equivalent is prerequisite to this course. A studio fee of \$10 is charged.

**S 4. Elementary Color.** Undergraduate; credit two to four hours. Daily except Sat., 8-12. *Third floor, Franklin.*

A course for beginners in color. Two hours of this course may be combined with two hours of S 1. Discussion of the principles of color as applied to representation and exercises in pastel, water color and oil.

**S 6. Outdoor Sketching in Color.** Undergraduate; credit two to four hours. Daily except Sat., 10-12, 2-4. *Third floor, Franklin.*

A knowledge of the elements of drawing and the elements of color is a prerequisite to this course. Instruction is given in oil from landscape.

The unusual variety and charm of the natural environment of Cornell give an abundance of subject-matter from which to work. There are woodland, open farming country, lakes and streams, broad panoramic views, and rugged gorges within easy walking distance of the campus.

**S 7. Drawing and Painting.** Undergraduate; credit two to four hours. Daily except Sat., 8-12. *Third floor, Franklin.*

Open to students with experience in drawing and painting. The work assigned will aim to satisfy the needs of the individual students registered.

**S 8. Sculpture.** Undergraduate; credit two to four hours. Daily except Sat., 10-12, 2-4. *Third floor, Franklin.*

Studio work in modeling and carving. Problems will be set to meet the needs of the individual student.

## MUSIC

**S 1. Theory and Practice of Music.** Undergraduate; credit two hours. Daily except Sat., 9. Open to all students who have had little or no training in music. Students offering music for entrance credit may not take this course for credit. *Music Building, 320 Wait Avenue.* Assistant Professor GORE.

An elementary course in the theory of music, including notation and terminology, scale, interval, and chord structure, melody writing, ear training, sight singing, and the elements of musical design.

**S 5b. The Art of Music.** Undergraduate; credit two hours. Daily except Sat., 10. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

An approach to the rational understanding and enjoyment of the art of music. This part of the course considers especially the larger forms employed by composers of the classic and romantic schools, as illustrated by various types of orchestral, chamber, violin, piano, and vocal music. The course is taught from the appreciative standpoint.

**S 8. The Orchestra.** Undergraduate; credit two hours. Daily except Sat., 11. Open to all students. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

A study of the instruments of the orchestra, their characteristics and capacities, their functions singly and in combinations; and of the orchestra as a whole, and various aspects of orchestral music. A non-technical course, requiring no ability to play these instruments and taught from the appreciative standpoint.

**S 10b. History of Music.** Undergraduate; credit two hours. Daily except Sat., 12. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

A survey of the evolution of the art of music, with particular reference to questions of style and to the place of music in the artistic and social life of nations. This part of the course covers the period from approximately 1700 to the present day, including the classic, romantic, and current schools of musical thought.

**S 34. Historical Survey of Chamber Music.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *Music Building, 320 Wait Avenue.* Prerequisite, Music 10b or its equivalent. Assistant Professor INGALLS.

An illustrated course giving a survey of chamber music from its beginnings to the present time.

**Chorus.** No credit. All men and women interested in singing in a Summer Session chorus will meet at 5 p.m. on Thursday, July 11, in the choir loft of the *Sage Chapel*, for discussion of plans and decision on a suitable schedule of rehearsals. Assistant Professor GORE will conduct the chorus.

**Orchestra.** No credit. Members of the Summer Session interested in joining the String Sinfonietta should apply to Assistant Professor INGALLS, on Monday, July 8, in the Drill Hall, or on Wednesday, July 10, at his office in the *Music Building, 320 Wait Avenue*.

**Applied Music.** Individual instruction in organ, piano, and violin. Credit two hours for students majoring in music; for other students, no credit. Hours to be arranged. *Music Building, 320 Wait Avenue*. Assistant Professors INGALLS and GORE, and Mr. ———.

Individual instruction in applied music is offered primarily for students wishing to major in music, and in the case of such students the work of the course is correlated with the theoretical courses being pursued by the student. Whenever the facilities of the department permit (1) other students and, during this session, (2) non-students, may register for this instruction. In each case, permission to register should be obtained from Professor WEAVER. In the case of students majoring in music, four terms of instruction are available, and the individual student is assigned to the course for which his previous training qualifies him.

Individual instruction is offered in organ under Assistant Professor GORE, in piano under Mr. ———, and in violin under Assistant Professor INGALLS. The normal registration involves two half-hour lessons a week at a special fee of \$2 a period. Practice facilities are available for each instrument; the fee for a daily hour for the term is \$3 in the case of a piano practice room in the Music Building, and \$11 in the case of the organ in the Sage Chapel. After obtaining permission to register for this instruction, students should consult the instructor about lesson hours, and the secretary of the department about practice hours.

**Master Class for Pianists.** A master class for advanced students of the piano will be taught by the famous pianist and teacher, EGON PETRI. Details as to fee and other arrangements may be obtained by addressing Professor PAUL J. WEAVER, Chairman of the Department of Music, 320 Wait Avenue.

## LANGUAGES AND LITERATURES, PUBLIC SPEAKING AND DRAMA

### ENGLISH

Courses S 1 and S 2 taken together will be accepted as the equivalent of either the first term or the second term of English 2 in the regular University session, but not of both.

**S 1. Freshman Composition.** Undergraduate; credit two hours. Daily except Sat., 8. *GS 124*. Dr. DUFFY.

A study of the principles of composition, intended to teach the habit of clear and effective expression; reading of models, frequent writing of themes, class discussions; conferences at hours to be appointed.

**S 2. Introductory Course in Literature.** Undergraduate; credit two hours. Daily except Sat., 9. *GS 124*. Dr. MAURER.

A study of selections from Shakespeare and Browning, intended to aid the student in acquiring habits of careful reading.

**S 4. Composition.** Undergraduate; credit two hours. Daily except Sat., 8. *GS 160*. Dr. WIENER.

Open to those who have passed both terms of the freshman course in composition and literature. A study of the technique of exposition, including the reading of several recent essays; and frequent practice in writing, with criticisms in personal conferences.

**S 7. Nineteenth Century Poetry.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS 162*. Professor MONROE.

A study and discussion of the most important poems of Byron, Shelley, and Keats. Texts: *Byron*, ed. Chew and Bredvold, 2 vols.; Modern Library *Keats and Shelley*.

S 8. **Modern American Poetry.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 142. Professor THOMPSON.

The leading poets from 1890 to the present. Text: Untermeyer, *Modern American Poetry*, fifth revised edition.

S 11. **American Literature to the Civil War.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. GS 156. Professor THOMPSON.

A study of literary, social, and political ideals of America as reflected in the writings of Irving, Bryant, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Longfellow, Whittier, Holmes, and Lowell. Text: Quinn, Baugh, and Howe, *The Literature of America*, Vol. 1.

S 12. **The Eighteenth Century Novel.** Undergraduate and graduate; credit two hours. Daily except Sat., 2:30. GS 156. Mr. LENROW.

A study of the main tendencies and some of the examples of prose fiction during the eighteenth century. Consideration of the currents of ideas which impelled the development of the narrative type in its various manifestations; with special attention to the qualities of creative imagination in the novel as it matured in Defoe, Richardson, Fielding, Smollett, and others.

S 14. **The Modern Novel.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 162. Dr. DUFFY.

Lectures on European, English, and American fiction, with reading of representative novels and reports upon them.

S 15. **Victorian Poetry.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 160. Assistant Professor FRENCH.

A study of certain poets from 1830 to 1910, with special emphasis upon Browning, and including Mrs. Browning, Arnold, Dobson, Hardy, Morris, Kipling, and Yeats. Text: *Victorian and Later English Poets*, edited by Stephens, Beck, and Snow.

S 16. **The English Language.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 162. Professor MONROE.

A study of some significant features in the growth and development of the mother tongue; language and grammar in general; some misconceptions about the life of language; the relationships of English; phonetics; the English vocabulary; inflections; native resources and foreign influences; the bearing of historical grammar on present forms and usages, spoken and written.

Baugh's *History of the English Language* is used as a basis for recitations, lectures, and collateral reading. The course does not require previous knowledge of Old or Middle English. Extra work is required for credit in the Graduate School.

S 17. **Modern Drama.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. GS 160. Assistant Professor MYERS.

A study in the origins of the modern drama in late nineteenth-century Europe, together with an examination of certain characteristic twentieth-century dramatic developments in Europe and America. Among the dramatists who will have particular attention are Ibsen, Strindberg, Chekhov, Pirandello, Shaw, and O'Neill.

S 20. **Shakespeare.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 156. Assistant Professor NUNGEZER.

A study of the dramatic art of Shakespeare as illustrated by *Hamlet*, *Macbeth*, *King Lear*, and *Antony and Cleopatra*; with supplementary readings.

S 22. **Milton.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 160. Dr. MAURER.

A study of Milton's poetry. Text: *Milton's Complete Poetical Works*, ed. Moody (Cambridge edition).

S 24. **Chaucer.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. GS 162. Assistant Professor FRENCH.

An introductory study of the *Prologue* and some of the *Canterbury Tales*, with special attention to their literary and social aspects. Previous training in reading



Middle English will not be expected. Text: F. N. Robinson, *Chaucer's Complete Works*.

**S 31. Dramatic Literature.** Undergraduate and graduate; credit two hours. First meeting, T, 2:30; subsequent hours to be arranged. *GS* 183. Assistant Professor MYERS.

A study of comedy based on thirty examples from the drama of Greece and France (in translation) and Elizabethan and Restoration England. Lectures on theories of laughter and comedy will accompany the reading of the plays; discussions and papers will provide opportunities to search for and test standards of appreciation and judgment.

**S 33. The Teaching of English in Secondary Schools.** (Education S 33). Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 156. Mr. LENROW.

A study of the place and aims of English in the secondary school, with a general consideration of objectives, materials, organization, methods, and evaluation. Special attention will be given to the language development of students; the social basis of composition, oral and written; and the choice, interpretation, and presentation of literature read intensively and extensively. Time will be reserved for problems arising both from recent educational theory and experiment and from special needs of schools from which teachers come.

**S 34. Elizabethan Literature.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 160. Assistant Professor NUNGEZER.

Studies in representative non-dramatic literature of the sixteenth century: the University Wits and their followers: Greene, Nashe, Lodge, Peele, Marlowe, Dekker, Marston, Middleton, Deloney, and Jonson.

**S 36. Romantic Literature.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS* 156. Dr. WIENER.

A brief survey of some romantic strains in English literature prior to the nineteenth century, followed by a more intensive study of selected nineteenth-century poets and prose writers, including Coleridge, Byron, and DeQuincey.

**S 201. Special Topics for Investigation.** For graduate students who wish to supplement courses described above or who are prepared to pursue independently of formal courses advanced study under the direction of one or more members of the staff. Credit varies with the nature and the amount of the work done. Such students may write to Professor MONROE or consult him at the opening of the Session.

## FRENCH

**S 1. Elementary Course.** Undergraduate; credit four hours. Entrance credit, one unit. Twice daily except Sat., 8 and 12. *GS* 283. Mr. MCBURNEY.

A course for beginners, offering intensive drill in the fundamentals of French. Reading of simple texts.

**S 3. Second Course.** Undergraduate; credit four hours. Entrance credit, one unit. Twice daily except Sat., 8 and 12. *GS* 281. Mr. BATES.

Prerequisite, French S 1, or one year of college French, or two years of high-school French. Reading, writing, and speaking French, with a review of French grammar.

**S 4. Reading of French.** Undergraduate; credit two hours. Daily except Sat., 10. *GS* 281. Mr. MCBURNEY.

Prerequisite, French S 3, or two years of college French, or three years of high-school French. Rapid reading of standard French authors.

**S 5. Written and Spoken French.** Undergraduate; credit two hours. Daily except Sat., 9. *GS* 283. Mr. BATES.

Prerequisite, French S 3, or two years of college French, or three years of high-school French. Practice in oral and written French, with a review of grammar.

**S 9. Written and Spoken French, Advanced.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 277. Dr. LECLERCQ.

Prerequisite, French S 5 or its equivalent. Especially recommended to candidates for the examination for the approval of Oral Credit in New York State.

Designed especially for teachers and prospective teachers. Translation into French; discussion of important points of syntax; theme writing; oral exercise. The course is conducted in French.

S 20. **Pascal.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS* 283. Professor BISHOP.

Prerequisite, French S 4 or its equivalent. Lectures, outside reading, and reports. The course is conducted in English.

S 30. **La Poésie du Dix-neuvième Siècle.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS* 277. Dr. LECLERCQ.

Prerequisite, French S 4 and S 5 or their equivalent. Lectures, outside reading, and reports. The course is conducted in French.

S 47. **French Seminary.** Graduate; credit two hours. Daily except Sat., 9. *French Seminary Room, Library.* Professor BISHOP.

Discussion of a special topic in the field of French literature. This course is designed to be an introduction to methods of literary research.

**Lectures.** A series of lectures in French dealing with French national life will be given by members of the instructing staff on Wednesday evenings at 8 o'clock in *Goldwin Smith Hall* 290.

**French Conversation.** Tables for informal conversation, under supervision of the instructing staff, will be reserved in *Willard Straight Cafeteria*, from 10 to 12 daily.

### GERMAN

S 1. **First Year German.** Undergraduate; credit four hours. Entrance credit, one unit. Daily except Sat., 8 and 12. *GS* 183. Assistant Professor SCHNEIDER.

After successfully completing this course, students can, by supplementary reading during the summer, prepare themselves for the College Board entrance examination in second year German.

S 3. **Third Year German.** Undergraduate; credit four hours. Entrance credit, one unit (third unit). Daily except Sat., 8 and 12. *GS* 177. Professor ANDREWS.

Prerequisite: two years of high school German or the equivalent.

S 6. **Readings from Goethe.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS* 183. Professor ANDREWS.

Prerequisite: a reading knowledge of German. Detailed study of one or more of Goethe's works, with a consideration of their place in his life and writings.

S 8. **Contemporary German Literature.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS* 177. Assistant Professor SCHNEIDER.

Prerequisite: a reading knowledge of German. Lectures in German on the literature of modern Germany since the period of naturalism, with recitations and collateral reading.

**German Lectures.** Lectures or interpretative readings in German will be given by members of the department on Wednesday evenings at 8 o'clock in *GS* 190.

### GREEK

S 1. **Introduction to Greek and to the Reading of Homer.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS* 124. Professor CAPLAN.

This course is intended (a) for graduate students who have had no Greek; (b) for high-school teachers of Latin who have had no direct acquaintance with Greek and are therefore deprived of one of the chief sources of understanding and appreciating the content of the Latin authors they present in class; (c) for students of literature who desire by intensive work during a Summer Session to lay the foundation for a first-hand appreciation of the literary masterpieces of Greece. Beginning with the alphabet, the course will give a thorough grounding in necessary forms, flexions, and syntax, and will proceed to the reading of a portion of the first book of Homer's *Iliad*.

S 2. **Advanced Greek.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 124. Professor CAPLAN.

For students who have mastered the elements and wish to enlarge their knowledge of Greek. Readings will be chosen to suit the needs of those who enter the course.

## LATIN

The work of the Summer Session in the field of Latin study is intended primarily for actual and prospective teachers of the subject in the secondary schools.

A series of advanced courses is offered for those who by their undergraduate training are qualified to enter the Graduate School, or to continue their work therein, as candidates for the degree Master of Arts. Those teachers who by previous training and experience are similarly prepared to pursue courses in Latin on a graduate level will be admitted to the work of the Summer Session without registration in the Graduate School.

Prospective students in the 1940 Summer Session are invited to correspond with Professor CHARLES L. DURHAM, Goldwin Smith Hall, Ithaca, N. Y., concerning the nature and the scope of the work in Latin. Those who wish to begin their candidacy for the degree Master of Arts should forward to the office of the Graduate School, on or before June 15, such credentials of undergraduate work leading to the degree of A.B. as will entitle them to admission to the Graduate School.

**S 1. Teachers Course.** Graduate; credit two hours. Daily except Sat., 9. *GS 128.* Professor DURHAM.

Introduction to the study of language, with especial reference to the Indo-European family. The nature, the causes, and the phenomena of linguistic change; a brief outline of the history of the Latin language; the Latin element in English. Primarily for teachers of high school Latin and for graduate students.

**S 2. Latin Poetry.** Graduate; credit two hours. Daily except Sat., 10. *GS 128.* Professor DURHAM.

Representative selections from Latin poetry illustrating the chief types of poetic composition, with particular reference to form and structure and to metrical and rhythmical treatment; saturnians, dramatic verse, chiefly that of Plautus and Terence, the classical period and its forms, the later period of Latin verse. Primarily for graduates.

**S 4. Theses and Informal Work.** Graduate; credit by arrangement; total credit for thesis will not exceed six hours. Professors DURHAM and CAPLAN.

Direction in the preparation of theses by candidates for the Master's degree, and in the investigation of special problems which arise in connection with the work of the individual teachers.

Special attention is called to the courses in Greek.

## SPANISH

**S 1. Course for Beginners.** Undergraduate; credit four hours. Entrance credit, one unit. Twice daily except Sat., 8 and 12. *GS 277.* Professor DALE.

The fundamentals of grammar. Reading and composition. Emphasis on Spanish as a spoken language.

**S 50. Supervision of Theses.** Graduate. By appointment with Professor DALE. *GS 271.*

## PUBLIC SPEAKING, DRAMA, AND THE THEATRE

## PUBLIC SPEAKING AND SPEECH

The courses in Public Speaking and Speech represent the following fields: Oral Interpretation; Speech Training; and Oral English. Either S 28 or S 32 (not both) may be counted as a course in methods approved by the New York State Department of Education for the teacher's certificate.

Students may confer either with the departmental representatives in Barton Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For information about advanced work in Speech Training and Phonetics, consult Mr. THOMAS, *GS 23*; in Rhetoric and Public Speaking, Mr. WICHELS, *GS 235*, or Mr. WAGNER, *GS 237*.

**S 1. Public Speaking.** Undergraduate; credit two hours. Daily except Sat., 11. *GS 21.* Dr. UTTERBACK.

Practice in speech-making, on topics of current interest. Methods of preparation and delivery studied in relation to practice; class discussions; conferences. Regular students passing the course are admitted to Public Speaking 2 and 12. High School teachers will find the methods applicable to their work in public speaking and oral English.

**S 2. Discussion.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 234. Assistant Professor WAGNER.

Practice in discussion of current public questions as a member of various kinds of groups: committee, panel, symposium, forum, etc. Study of theories of group thinking and of principles and types of group discussion; conferences. Opportunity will be offered to plan and conduct discussions.

**S 10. Oral Interpretation of Literature.** Undergraduate; credit two hours. Daily except Sat., 12. *GS* 21. Dr. UTTERBACK.

Training in interpretative reading of prose and poetry; study of principles; constant practice; conferences.

[**S 14. Public Opinion.** Credit two hours. Professor WICHELS. Not given in 1940.]

**S 20. Rhetorical Theory.** Graduate; credit two hours. Daily except Sat., 9. *GS* 236. Assistant Professor WAGNER.

Lectures and discussions. A survey: function of speech in society; purposes and forms of public address; speech preparation; structure; style; delivery; theories of persuasion.

**S 21. History of Oratory.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS* 234. Professor WICHELS.

A survey of ancient and modern oratory: Greek and Latin (in translation), English and American. Lectures, readings, and reports.

[**S 22. Rhetorical Criticism.** Credit two hours. Assistant Professor WAGNER. Not given in 1940; given in 1941.]

**S 28. Teachers' Course in Oral English and Public Speaking.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS* 234. Professor WICHELS.

Designed for secondary school teachers whose work includes oral English or public speaking. Aims and standards; organization of courses; methods and materials; planning and conduct of speech programs and activities. Examination of reports and syllabuses on oral English and speech in secondary schools. Individual conferences for special problems.

**S 32. Teachers' Course in Phonetics and Speech Training.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS* 21. Assistant Professor THOMAS.

A study of English phonetics, pronunciation, and the improvement of speech; primarily for secondary and elementary school teachers.

**S 33. Regional and Historical Phonetics.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS* 21. Assistant Professor THOMAS.

The major varieties of American pronunciation and their historical development. Open to students who are familiar with the fundamental principles of phonetics.

[**S 34. Principles of Phonetics.** Credit two hours. Assistant Professor THOMAS. Not given in 1940; given in 1942.]

[**S 36. Principles of Speech Correction.** Credit two hours. Assistant Professor THOMAS. Not given in 1940; given in 1941.]

**S 200. Theses and Special Problems.** Graduate; credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be done must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in public speaking, rhetoric, or phonetics.

For further information consult Professors THOMAS, WAGNER, or WICHELS.

**Round Table.** Coaching for Contests and Debates. Informal discussion of methods and problems. First meeting Th, 4. *GS* 236. Assistant Professor WAGNER.

**Round Table:** College Teaching of Fundamentals. First meeting W, 4. *GS* 236. Professor WICHELS.

**Speech Clinic.** For students working under the direction of the department. Assistant Professor THOMAS and Mrs. ARLT, *GS* 23 and 25. By appointment.

The courses required for the degree of Master of Arts in Public Speaking and Speech Training are offered through a rotation of courses in a minimum of five summers. Candidates will take, or offer suitable equivalents for S 1, S 2, and S 10; six hours in each of the following four divisions: Rhetoric and Public Speaking, S 14, S 20, S 21, S 22, S 28; Speech Improvement and Phonetics, S 32, S 33, S 34, S 36; Dramatic Production, S 41, S 42, S 43, S 45, S 66, S 90; electives in English, History, Government, Sociology, Psychology. In addition, each candidate will offer two hours in one of the three departmental divisions, and during the final summer will register in S 200 for the writing of a thesis or extended essay.

#### DRAMA AND THE THEATRE

Students may confer either with the departmental representatives in Barton Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For further information about registration, or advanced work, consult Mr. Stainton, *GS* 239, or Mr. Drummond, *GS* 244.

Courses in Phonetics and Speech Training are listed above under Public Speaking and Speech.

S 41. **Dramatic Production.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Stage Laboratory, Morse.* Dr. ALBRIGHT.

For upperclassmen and graduates. Theory of stage direction; fundamentals of theatrical mounting; survey of practical phases of production. Prerequisite for further graduate work in Dramatic Production.

S 42. **Dramatic Interpretation and Acting.** Undergraduate and graduate; credit two hours. M W F, 2—4. *GS* B. Assistant Professor CURVIN.

A practice course in oral interpretation, pantomime, acting, and group rehearsals.

[S 43. **Choosing and Directing School and Community Plays.** Credit two hours. Not given in 1940.]

S 44. **Advanced Dramatic Interpretation.** Undergraduate and graduate; credit two hours. By assignment. Assistant Professor STANTON.

Specific assignments in the presentation and production of plays, for those who have been with the department for at least one summer and have taken S 42.

S 45. **Stagecraft and Stage Lighting.** Undergraduate and graduate; credit two hours. Daily except Sat., 11, and additional laboratory hours to be arranged. *Stage Laboratory, Morse.* Assistant Professor STANTON.

Planning of small theatres; stage management; problems and practice in construction and lighting. Assignments will vary with the needs of the individual. Laboratory fee, \$5.00.

[S 45a. **Stage Lighting.** Credit two hours. Assistant Professor STANTON. Not given in 1940.]

[S 48. **History of the Theatre.** Credit two hours. Not given in 1940.]

[S 49. **Playwriting.** Credit two hours. Not given in 1940.]

S 66. **Dramatic Art.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 242. Professor DRUMMOND.

For upperclassmen and graduates having sufficient preparation for somewhat advanced work in the theory of the theatre. Lectures, readings, and reports.

S 90. **Technical Theatre Practice.** Undergraduate and graduate; credit two hours. Hours to be arranged. Open by consent of instructor. Mr. LEWIS. Register in *GS* 25.

Technical practice coordinated with the regular productions of the Summer Theatre; readings on the techniques involved.

S 95. **Stage Make-up.** Undergraduate and graduate; credit two hours. M W, 4—6. *Stage Laboratory, Morse.* Associate Professor WILSON. Register in *GS* 25.

Laboratory in make-up coordinated with the productions of the Summer Theatre; readings and lectures on history of make-up, masks, and on period ornament and dressing.

**S 300. Special Problems and Theses.** Graduate; credit two or more hours. Hours to be arranged. On registering for this course the name of the professor with whom the work is to be taken must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in the field of drama and the theatre.

For further information consult Professor DRUMMOND or Assistant Professor STAINTON.

**Dramatics Round Tables.** No credit.

**Problems of School and Community Dramatics.** First meeting Th, 4. *GS* 242. Dr. ALBRIGHT.

**Planning and Use of School Stages.** First meeting W, 4. *GS* 242. Assistant Professor STAINTON.

**Playwriting on New York State Themes.** First meeting F, 4. *GS* 242. Mr. GARD.

**Modern Drama.** See English S 17.

**Dramatic Literature.** See English S 31.

**Shakespeare.** See English S 20.

The courses required for the degree of Master of Arts in dramatic production are offered through a rotation of courses in a minimum of five summers. Candidates will take, or offer suitable equivalents for S 1, S 10, S 41; in Drama and Theatre six hours from S 45, S 45a, S 48, S 66; eight hours from S 42, S 44, S 45a, S 90, S 95; in Dramatic Literature, English S 17, English S 31; in Speech Improvement and Phonetics, six hours from S 32, S 33, S 34, S 36; in Rhetoric and Public Speaking, four hours; and during the final summer will register in S 300 for the writing of a thesis or extended essay based on one of the advanced courses.

## ECONOMICS, GOVERNMENT, HISTORY, AND SOCIOLOGY

### ECONOMICS

The following courses are designed to meet the needs of three classes of students in the Summer Session: (1) those desiring regular credit for general economics; (2) students with special interests in economic subjects; (3) students seeking broad preparation for the teaching of economics in the secondary schools.

**S 11. Money and Banking.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS* 264. Professor O'Leary.

A study of the history and theory of money and banking especially in relation to the functioning of the American economic system as a whole.

This course will satisfy all requirements which otherwise would necessitate taking Economics 11 in the regular sessions.

**S 31. Corporation Finance.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *GS* 264. Professor O'Leary.

A study of the financial practices of business corporations in the United States: types of corporate securities; the exchange of such securities for capital funds; determination and administration of corporate incomes; financial difficulties and corporate reorganizations; the relation of corporate practices to the functioning of the American economic system; and the regulatory activities of the Securities and Exchange Commission.

**S 41. Contemporary Labor Movements and Problems.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS* 264. Professor MONTGOMERY.

A study of the character and determinants of some of the more outstanding labor problems in contemporary America and a survey of recent developments in, and policies and tactics of, the American labor movement.

**S 46. Government Policies toward Labor and Industry.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS* 264. Professor MONTGOMERY.

A study of changes in, and the present character of, the government's policy toward labor and business enterprise. The underlying philosophical basis and

the problems arising out of such legislation as the National Labor Relations Act, the Social Security Act, and the Federal Wages and Hours Acts will be examined.

S 3A31. **First Course in Accounting.** For description, see under Administrative Engineering.

## GOVERNMENT

S 11. **Comparative Government.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Boardman* B. Professor KETCHAM.

An introduction to the study of the organization and functions of the major European governments. Some emphasis will be placed on the effects of the war on those governments and the current trends in political philosophy.

S 40. **Current Problems of National Government.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Boardman* B. Professor KETCHAM.

A survey of the basic governmental problems of national scope such as the national debt, social security, housing, reorganization of the national administration, reciprocal tariffs, conservation, national defense, etc. A portion of the work will be concerned with the programs and platforms of the presidential candidates and the conduct of the campaigns.

## HISTORY

S 1. **The Decline of the Roman Republic and the Founding of the Empire.** Undergraduate and graduate; credit two hours. Professor LAISTNER. Daily except Sat., 10. *Boardman* D.

A survey of the political, economic, and cultural life of the Roman World from the time of the Gracchi to the death of Augustus.

S 8. **England under the Stuarts.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Boardman* D. Professor MARCHAM.

A study of English civilization in the seventeenth century, with special attention to the constitutional conflicts, growth of religious toleration, education, and the arts. Charles I, Cromwell, Strafford, Milton, Locke, Halifax, and other leading personalities will be considered in relation to the public life of the period. Text: G. M. Trevelyan, *England under the Stuarts*.

S 9. **The British Empire in World Affairs: 1830 to the Present.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Boardman* D. Professor MARCHAM.

The chief topics considered will be: British imperial policy in the 19th century; British imperialism and its rivals from 1880-1914; the British empire and the 1st World War; the transition from dominion status to the commonwealth of nations; the British empire and the imperial ambitions of Japan, Italy and Germany; and the British empire in the 2nd World War.

S 16. **American History: 1850-1876.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Boardman* C. Assistant Professor GATES.

A study of the economic and social forces leading to disunion; the constitutional and political changes of the Civil War period and the emergence of modern America.

S 20. **Recent American History: 1876-1940.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Boardman* C. Assistant Professor GATES.

A study of population movements, railroad expansion, agrarianism, industrial development, growth of big business, labor problems, Progressive Movement, the World War and post War problems, depression and the New Deal.

S 23. **Medieval Society.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Boardman* D. Professor STEPHENSON.

An introductory course on the social and economic history of the Middle Ages. Among the topics considered will be the following: the decay of the Roman Empire, agrarian organization and the manorial system, the development of feudalism, the revival of commerce and urban life, the emancipation of the peasantry, social unrest in the fourteenth century.

S 47. **Europe: 1870-1940.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Boardman* C. Professor ANDERSON.

A general survey of the forces at work in pre-1914 Europe, a brief survey of the war, followed by a more detailed study of European history since 1918, with special attention to social and political development.

S 50. **Conservative Forces in European Society during the 19th and 20th Centuries.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Boardman C.* Professor ANDERSON.

A study of the cultural groups of the *ancien regime*—royalty, aristocracy, clergy, middle class, peasantry—as they have survived into the modern period.

## SOCIOLOGY: RURAL SOCIOLOGY

A 1. **General Sociology.** Undergraduate; credit two hours. Daily except Sat., 8. *Warren 325.* Professor ANDERSON.

The analysis and utilization of concepts and principles of sociology, with special emphasis on groups, institutions, social processes, and social change.

A 10. **The Family.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS 225.* Assistant Professor BROWN.

An analysis of marriage and the family as basic aspects of culture and social organization with emphasis on contemporary trends and problems.

A 20. **Social Problems.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Warren 340.* Professor ANDERSON.

A study of the maladjustments in society, such as crime, poverty, sickness, old age, accident, degeneracy, insanity, class and racial struggles, and consideration of methods by which society attempts to deal with these problems.

A 111. **Rural Community Organization.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Warren 302.* Professor SANDERSON.

A consideration of the structure and functioning of rural community organizations; the organization of the rural community; and a review of group work techniques, such as local leadership development, program planning, use of group activities for informal teaching, the use of committees, and inter-organization cooperation. A course for extension workers and school teachers.

A 124. **Social Case Work.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Warren 340.* Miss STRODE.

An introductory study of the theory and practice of social case work as used in public and private welfare agencies, court and probation work, and the family relations of school and church. Designed for prospective social workers, and of value to extension workers and teachers.

## SPECIAL COURSES FOR RURAL WELFARE WORKERS

The following special courses for Rural Welfare Workers and Farm Security Administration Supervisors will be given during the first three weeks, July 8-26.

W. 10. The Rural Family

W. 111. Rural Community Organization

W. 124. Principles and Methods of Rural Case Work

W. 208. Seminar for Welfare Workers.

W. 209. Seminar for Farm Security Men Supervisors.

W. 210. Seminar for Farm Security Women Supervisors.

These courses are not open to regular students of the Summer Session. A special announcement concerning them may be had upon application.

## EDUCATION

### EDUCATION: RURAL EDUCATION

#### THE GRADUATE SCHOOL OF EDUCATION

The GRADUATE SCHOOL OF EDUCATION, by integrating the work in the Departments of Education and Rural Education, offers courses that prepare for the more important types of teaching, supervisory, and administrative positions.



## TYPES OF PROFESSIONAL PROGRAMS LEADING TO STATE CERTIFICATION

For several types of professional workers, programs have been so planned that it is possible for the student to secure a Master's degree while completing requirements for a state certificate. Among the professional positions for which programs have been prepared are these:

Teachers of academic subjects in the secondary school, of agriculture, home economics, industrial arts, industrial education, nature study and of atypical children

Supervisors of agriculture, home economics, industrial education, and industrial arts

Guidance counselors

Principals of elementary or secondary schools

Principals of vocational or technical high schools

Directors of vocational education

Supervisors of elementary school grades

Supervisors of attendance

Supervising principals of small village central or consolidated schools

Superintendents of large village or city school systems

District superintendents, county superintendents or similar leaders in rural education.

For information regarding any of these programs the student who is already matriculated in the Graduate School of Cornell University should consult the Chairman of his Special Committee. Others should write to the Director of the Graduate School of Education.

Opportunities for specialization in the various phases of Education are, of course, offered for those not concerned with certification.

## SPECIAL CONFERENCES

From July 9 through July 19 a two-week non-credit **Study Conference for City Supervisors of Home Economics** will again be offered through the cooperation of the Graduate School of Education and the College of Home Economics at Cornell, the New York State Education Department and the Home Economics Education Service of the Office of Education. Supervisors may apply for admission to this conference and secure a program by writing the Graduate School of Education, Stone Hall, after April 1. A conference fee of \$5 is charged.

The **Seventh Annual Summer Session Conference** is to be held on August 9 and 10, under the joint auspices of the Graduate School of Education and the New York State Education Department. For several years this conference has concerned itself with the problems of youth. The theme for the 1940 conference is "Youth and Money Management." Such aspects of this vital problem as budgeting, buying, borrowing, saving and insuring will receive consideration. Speakers and discussion leaders will include leading authorities in the field of personal financial planning, recruited from the Cornell faculty, from other leading institutions of higher learning in the East, and from various government agencies. The complete program will be released about June 1.

## EDUCATIONAL PSYCHOLOGY, MEASUREMENT, STATISTICS

**S 7. Mental Measurements.** Graduate; credit two or three hours. With consent of the instructor, this course may be taken without observations for two hours credit. Daily except Sat., 9. Observation hours to be arranged. *GS 142.* Professor FREEMAN.

Concepts of intelligence; individual and group tests of intelligence; principles underlying their construction and interpretation; use of tests in schools and other fields. Lectures, readings, and observations of individual testing.

**A 12. Psychology of Exceptional Children.** Graduate; credit two hours. Daily except Sat., 11. *GS 242.* Professor FREEMAN.

Designed to give a scientific understanding of children who deviate from the usual: the gifted, the feeble-minded, the delinquent, those having special abilities

or disabilities, those having personality defects, and those having sensory and physical handicaps. Lectures, reading, and case studies. Students who have not had or are not now taking a course in mental measurements may be admitted only with approval of the instructor.

A 111. **Psychology for Students of Education.** Undergraduate; credit two hours. Daily except Sat., 11. *E. Roberts* 223. Dr. GARDNER.

A point of view in psychology for students of education. The nature of man with emphasis on the tendencies to behavior basic to learning; the learning process; individual differences.

A 116. **Child Psychology.** Undergraduate; credit two hours. Daily except Sat., 10. *Plant Science* 107. Dr. WHITE.

Students who have not had a course in educational psychology admitted only on approval of instructor.

A 212. **Psychology of Learning.** Graduate; credit two hours. M W F, 7:30-8:50 a.m. *Warren* 125. Dr. WHITE.

For students who have had at least an elementary course in psychology and want to extend their study of the learning process.

A 215. **Psychology of Adolescence.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Warren* 225. Professor WINSOR.

A study of the behavior of children during the adolescent stage of development.

A 251. **Educational Measurement.** Graduate; credit two hours. Daily except Sat., 8. *Warren* 101. Assistant Professor BAYNE.

The use and interpretation of tests by teachers and school officers as aids in the improvement of instruction.

A 253. **Educational Statistics.** Graduate; credit two hours. Daily except Sat., 10. *Warren* 101. Assistant Professor BAYNE.

The use of statistical methods in the study of current problems of administrative and supervisory officers and teachers. The work of the course will be related to the individual problems of the members of the class.

#### EDUCATIONAL METHOD

S 4. **Secondary School Methods.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS* 134. Assistant Professor HULSE.

A critical study of the theory of method, through an analysis of teaching objectives, types of subject-matter and basic teaching procedures. Current plans and techniques of teaching will receive considerable attention in order to determine their characteristic values. Familiarity with the secondary school pupil through experience is assumed.

S 33. **The Teaching of English in Secondary Schools.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS* 156. Mr. LENROW.

A study of the place and aims of English in the secondary school, with a general consideration of objectives, materials, organization, methods, and evaluation. Special attention will be given to the language development of students; the social basis of composition, oral and written; and the choice, interpretation, and presentation of literature read intensively and extensively. Time will be reserved for problems arising both from recent educational theory and experiment and from special needs of schools from which teachers come.

A 107a. **The Teaching of Nature Study or Elementary Science.** Undergraduate and graduate; credit two hours. Lectures, M W F, 10. *Fernow* 8. Field and laboratory work, T Th, 10-12:30 or 1:40-4. Miss GORDON and Miss VAN DUZER.

To acquaint teachers with the principles, materials and methods of nature study or elementary science. The biological and physical science commonly found in elementary school programs will be considered through activities in lecture, laboratory and field.

A 122a. **Observation of Child Activity Education.** No credit. Daily except Sat., 9-11:30, and group conferences each Thursday from 2-3:30. *Comstock* 17 and 245. Dr. RUEGSEGGER, Miss KNAPP and Miss MOEN.

Two teachers will give demonstration work in grades one and two, and five and six during the Summer Session period. These demonstrations will illustrate two

conceptions of an activity program in the elementary school. So far as facilities permit, Summer Session students will be allowed to observe these classes. The group conferences will be held for the purpose of discussing and interpreting the teaching observed.

A 129. **Teaching Adaptations for the Atypical Child.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *E. Roberts* 223. Dr. GARDNER. Consideration, with demonstrations, of special techniques of teaching adapted to the needs of atypical children.

A 134a. **Special Education for Out-of-School Youth and Adults.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Warren* 325. Assistant Professor HOSKINS.

Designed for teachers of vocational agriculture and other leaders of older youth and adults in rural areas. The consideration of the objectives, development and trends of education for out-of-school groups. For 1940 the emphasis will be on out-of-school youth.

E 134b. **Adult Homemaking Education.** (Home Economics E 120s. Leadership in Home Economics.) Undergraduate and graduate; credit three hours. Discussion, M W F, 10-12. *Martha Van Rensselaer* 121. Miss HENDERSON.

For extension workers, home economics teachers, and others interested in leadership in homemaking education. Fee, \$3; estimated cost of trips, \$10.

A 142x. **Project Development Laboratory in Industrial Arts.** Undergraduate and graduate; credit two hours. Lectures, T Th, 1:30. *E. Roberts* 223. Laboratory, M W F, 1:30-4. *Senior High School Laboratory* 13. Dr. ASHLEY.

Study of the development of projects for use in industrial arts instruction, with special emphasis on the creative aspects of project development. Opportunity will be provided for designing new projects and making up sample projects in the laboratory work shop. Enrollment limited to 20. Laboratory fee, \$2.

S 143. **The Organization and Teaching of Technical Subjects.** Undergraduate and graduate; credit two hours for each unit.

b. Organization of content into units, topics and lessons; preparation of drawings, lesson plans, instruction sheets and other aids to instruction. Each student should provide himself with drawing equipment, and should bring with him the syllabus or course of study on which he desires to concentrate his work. M W F, 1:30-3. *Rockefeller* 110. Mr. PABST.

c. Special methods applicable to teaching technical and related subjects in drawing room, shop, laboratory and classroom. Daily except Sat., 9. *Rockefeller* 110. Mr. GRAY.

A 202. **Nature Literature.** Graduate; credit two hours. Open to students who will have completed their preparation for certification as science teachers by the end of the current year. Daily except Sat., 9. *Fernow* 8. Miss GORDON.

Acquaintance with prose, poetry, and fiction useful in enriching science courses in elementary and in secondary schools with critical examination of nature and science texts for these grade levels.

A 226c. **The Teaching of Biology in Secondary Schools.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Fernow* 14. Assistant Professor JOHNSON and Acting Assistant Professor HOOD.

The application of aims and objectives for biology teaching to problems of selection and organization of subject matter into biology units. Effective plans for guiding pupil learning will be reviewed and applied to biology teaching. The problems of materials, field trips, visual aids, tests, and the like, will be considered. Fundamental biology content as well as modern teaching methods will be emphasized.

A 232. **Special Problems in the Teaching of Agriculture in the Secondary School.** Undergraduate and graduate; credit two hours, for two special units of three weeks each. Units may be taken separately by permission, for one hour credit each. For residence credit in the Graduate School both units must be taken. Must be preceded by a course in the teaching of agriculture. Daily except Sat., 11. *Warren* 201. Assistant Professor HOSKINS.

Unit 1. July 8-26. Field studies and analyses as course determinants.

Unit 2. July 29-August 16. Advanced study of teaching procedures.

A 236. **Creative Procedures in the Teaching of Home Economics in the Secondary School.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Warren* 201. Mrs. ROBERTS.

Designed to develop creative ideals and procedures for appraising, building, and teaching a home economics program for school and community.

A 245. **College Preparation of Teachers of Agriculture for Departments in Secondary Schools.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Warren* 201. Professor STEWART.

Open to teachers, supervisors and principals. Special attention will be given to the problems of preparation involved in the redirection of teacher education under a five-year plan.

A 250. **Seminar in Agricultural Education.** Graduate; credit two hours. Daily except Sat., 8. *Stone* 309. Professor STEWART.

Open only to teachers or persons responsible for supervision who have previous graduate experience. Consideration will be given to the problems involved in the introduction of agriculture into a six-year secondary school program.

#### ADMINISTRATION, SUPERVISION, AND CURRICULUM

A 5. **High School Administration.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS* 225. Professor HOLY.

A course in the techniques of high school administration which includes a critical study of the principal and principalship, principles of high school administration, staff organization, the school day, class size, and teachers loads, schedule-making, principal's office, filing systems, records and reports.

S 10. **Problems in High School Administration.** Graduate; credit two hours. T Th, 1:40-4. *GS* 221. Professor JORDAN.

An advanced course in high school administration, dealing with problems peculiar to the administration of secondary schools. The course presupposes preliminary courses including administration, curriculum, and supervision. The materials are arranged in a three-year cycle so as to give graduate students a continuous three-year course. The cycle is: I. Organization and Management of the Building, 1940; II. The Teaching Staff, 1941; III. The Pupil and the Public, 1942.

Students may enroll in any unit of this course; and particular attention is given to the needs of the group. Permission of the instructor must be obtained before enrollment. Papers and reports required.

S 11. **Extra-Classroom Activities.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *GS* 256. Professor JORDAN.

A study of the place extra-classroom activities should assume in the school program. General principles involved, with special attention to athletics, dramatics, publications, school finance, music, debate, and school clubs. Individual problems of the class will have special attention.

A 23. **The Administration of the Elementary School.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Warren* 125. Dr. RUEGSEGER.

A consideration of problems in the administration of an elementary school. Intended primarily for persons seeking an elementary principal's certificate.

A 169a. **Administrative Problems of the Homemaking Teacher.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Warren* 340. Mrs. ROBERTS.

An undergraduate course recommended by the State Education Department to meet New York State certification requirements and designed to help teachers solve major administrative and organization problems of the homemaking program in school and community. Consideration will be given to the teacher's responsibility to local and state administration, the state program of home economics, adjustments of courses to individual situations, the budget, location and types of centers, the school lunch, methods of securing the interest of the community in the home economics program.

A 242a. **Seminar in Industrial Arts Education.** Graduate; credit two hours. Daily except Sat., 10. *Warren* 240. Dr. ASHLEY.

A study of the administration and supervision of industrial arts programs in the public schools.

A 243. **Problems in the Administration of Industrial and Technical Education.** Graduate; credit two hours. Daily except Sat., 11. *Plant Science* 141. Professor EMERSON.

A course in school administration dealing with the responsibilities of the principal and administrative assistants in industrial and technical high schools, and of the city director of vocational education.

S 243a. **Supervision of Industrial and Technical Education.** Graduate; credit two hours. Daily except Sat., 10. *Rockefeller* 106. Mr. GRAY.

Principles and practices in the improvement of instruction in all phases of industrial and technical high school courses. This course is correlated with A 143c.

A 249. **Seminar in Home Economics Education.** Graduate; credit two hours for each sub-unit. Designed primarily for graduate students who have had experience as home economics educators in schools, colleges, extension service, business, etc. Arrangements will be made for students to work on their individual problems. Courses in philosophy and principles of education, psychology, guidance, curriculum, and measurement are recommended as prerequisite or parallel. Students will need to consult the instructor before registering.

[a. **Curriculum Development in Home Economics.** Not offered in 1940. See Practicum 276c.]

b. Service and research studies. M T W Th 7:30-8:50 a.m. *E. Roberts* 223. Professor THURSTON.

[c. **Evaluation of Home Economics Education.** Not offered in 1940.]

A 261. **The Administration of Rural Schools.** Graduate; credit two hours. Daily except Sat., 8. *Plant Science* 107. Professor BUTTERWORTH.

A general course in school administration dealing especially with the problems of village and central schools. Individual attention will be given to those who are working in larger schools.

A 262b. **The School Plant.** Graduate; credit two hours. Daily except Sat., 8. *Plant Science* 141. Professor HOLY.

A study of major problems involved in determining school building needs of the community, techniques for determining room requirements, types of buildings, their construction and adaptation to education needs, school sites, methods of evaluating buildings, financing capital outlay expenditures and school plant needs. Major emphasis will be on building problems in village and central rural districts.

A 262e. **The Administration of Attendance.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Warren* 240. Mr. MOSHER.

Underlying intent and purpose of child welfare and education statutes to insure and preserve educational opportunity and school training for children; a study of procedures by which school, home and community influences and resources may, with prompt cooperation of persons concerned, function effectively, including the development of sustaining home conditions, the establishment of needed health measures and consideration of employment problems.

This course, together with Ed. 12 and R.S.O. 124, may satisfy the special requirements for certification of supervisors of attendance.

A 263. **Procedures and Techniques in Supervision.** Graduate; credit two hours. Daily except Sat., 11. *Plant Science* 107. Professor MOORE.

Designed for superintendent, supervisors, and principals. Inexperienced students admitted only by permission. A consideration of the nature and purpose of supervision; the improvement of the learning-teaching process; skill in observations; analysis of methods; relationships between general and specific objectives; selection, analysis, and organization of subject matter; measuring and testing results; assisting teachers in professional growth.

S 266. **The Supervision of the Elementary School.** Graduate; credit two hours. Daily except Sat., 9. *Plant Science* 107. Professor MOORE.

Designed for supervisors, elementary school principals, and superintendents. A consideration of important research studies which have a direct bearing upon the teaching and supervision of the elementary school subjects.

A 267b. **The Supervision of Vocational Agriculture in the Secondary School.** Graduate; credit two hours. Daily except Sat., 9. *Warren* 240. Assistant Professor SMITH.

Designed for teachers, supervisors, principals, district superintendents and other educational leaders responsible for supervision in this field. A consideration of the supervisory and professional-improvement needs of teachers of vocational agriculture and the procedures and techniques appropriate to supervision.

A 276. **Principles of Curriculum Building.** Graduate; credit two hours. Daily except Sat., 9. *Plant Science* 143. Professor FERRISS.

A consideration of major problems, principles and techniques in determining objectives and curriculum content and organization in elementary and secondary schools in the light of modern educational theory and practice. Selected samples of recent curriculum building will be critically examined.

B 276c. **Curriculum Laboratory.** Graduate; credit two to four hours. Daily except Sat., 1:40-4-15.

General coordinator, Professor FERRISS

Elementary grades, Dr. RUEGSEGGER

Home Economics, Professor THURSTON

Industrial and Technical, Professor EMERSON

Mathematics, Assistant Professor HULSE

Science, Assistant Professor JOHNSON

Social Studies, Associate Professor ANDERSON

This laboratory course is designed to afford experienced teachers and supervisors an opportunity to work on curriculum problems and projects under the direct supervision and guidance of members of the staff. The keynote of the Laboratory is the combination of theory and practice. Such integration will be sought through readings, lectures and discussions on principles and techniques of determining objectives, curriculum content and organization. There will be weekly conferences, also, attended by all students and members of the Laboratory staff, for the consideration of common problems.

Since the number of students that can be accommodated in the 1940 session will be limited, teachers and supervisors interested should make application either to Professor FERRISS or to the appropriate staff member as listed above, stating the field and grade level in which they are interested, and the nature of the problem upon which they wish to work.

#### GUIDANCE

A 28. **Introduction to Educational and Vocational Guidance.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Warren* 225. Dr. FAILOR.

A study of the principles and methods of guidance and its important role in providing effective education in a democratic society; procedures and techniques of individual and group counseling; guidance functions of teachers, homeroom advisers, administrators, and community agencies; organizing and evaluating guidance programs. Educational and vocational guidance in secondary schools will be stressed. Attention will be given to the guidance problems encountered in schools of varied types, sizes, and resources.

A 32. **Practicum in Guidance.** Graduate; credit two hours. Daily except Sat., 1:30-3. *Plant Science* 343. Dr. FAILOR.

A study of the practical aspects of guidance by means of a directed and cooperative attack on the problems actually encountered by those enrolled in the course; analytical, diagnostic, and counseling techniques will be applied to actual and hypothetical cases; methods of gathering and using educational and occupational information will be studied; problems involved in organizing and administering guidance programs will receive attention. Students should bring case data and other information pertaining to their problems.

A 32a. **Research in Guidance and Personnel.** Graduate; credit two to four hours. Daily except Sat., 9. *Warren* 101. Mrs. REED.

Planned (1) to assist graduate students in this field in acquiring research techniques and to afford practice in their application, (2) to indicate opportunities, methods and materials for the cultivation of "research attitudes" in dealing with problems among public school and college students and among other organized groups. Admission only on the approval of the instructor.

**A 217. Use and Interpretation of Tests in Guidance.** Graduate; credit two hours. Daily except Sat., 8. *Warren* 340. Professor WINSOR.

This course deals with the development, use, interpretation, and significance of psychological measuring devices as a basis for analyzing the capacities, interests, and abilities of individuals seeking vocational guidance. A course in measurement is prerequisite.

#### PRINCIPLES AND HISTORY OF EDUCATION

**A 130. Social Foundations of Education.** Undergraduate; credit three hours. Daily except Sat., 8. *GS* 225. Associate Professor ANDERSON.

For students who are following the newly established five year program of teacher training. The course treats the school as a social institution, describes the essentials of American democracy, and considers the functions of education in the United States today.

**A 294. Philosophy of Education.** Graduate; credit two hours. Daily except Sat., 9. *GS* 225. Professor LORAM.

A consideration of some of the principal theories of education in an attempt to arrive at principles based on our knowledge of the human organism, society and the structure of society, which can be applied in practical education.

**A 295. Comparative Education.** Graduate; credit two hours. Daily except Sat., 11. *Warren* 325. Professor LORAM.

An introduction to a comparative study of the principal problems of education based on a discussion of institutions, practices and ideologies in the educational systems of England, France, Germany, and Mexico.

#### RESEARCH

**B 300. Research.** Graduate; credit as arranged. Members of the staff of the Graduate School of Education.

Students working on theses or other research projects may register for this course. The staff members concerned must be consulted before registration.

#### HEALTH EDUCATION

**S 1. The School Health Program.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Stimson*. Dr. SMILEY.

Problems in the organization, administration, and operation of a modern school health program including: healthful school living; medical and dental supervision; health instruction; physical training.

**S 2. Mental and Physical Health Problems of the School Child.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Stimson*. Dr. EVANS.

A discussion of the common mental and physical disorders of the school child with suggestions for prevention and management.

**S 3. Mental Hygiene.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Stimson*. Dr. DARLING.

The human being considered as a psychobiologic unit in a complex environment. Discussion of (1) general personality structure; (2) maladjustment factors functioning at different ages from infancy through life; (3) the more common maladjustment symptoms and mental illnesses and their prevention.

#### PHYSICAL EDUCATION

**S 4. Community Recreation.** Undergraduate; credit two hours. Daily except Sat., 9. *GS* 164. Professor YOUNG.

A study of the need, nature, function and development of a recreational program together with the agencies and facilities involved in its organization and administration.

**S 6. Administration, Organization, and Supervision of Physical Education.** Undergraduate; credit two hours. Daily except Sat., 8. *GS* 164. Professor YOUNG.

Problems involved in the general administration, organization and supervision of (a) required physical education in secondary schools and colleges (b) extra and intramural activities.

**S 12. Body Mechanics.** Undergraduate; credit one hour. Daily except Sat., (men) 11, (women) 12. *Sage gymnasium*. Mrs. BAIRD.

Planned primarily for teachers who are interested in the development of body poise and carriage. Special attention is paid to weight problems and correction of posture faults, with aim of establishing intelligent self direction in health practices.

**S 14. Folk Dancing.** Undergraduate; credit one hour. For men and women. Daily except Sat., 2. *Sage gymnasium*. Mrs. BAIRD.

Representative folk dances from all countries, ranging from simple dances to dances of moderate difficulty adapted to school and recreational groups.

**S 16. Teaching Methods in Aquatics.** Undergraduate; credit one hour. M W F, 3. *Old Armory*. Mr. LITTLE.

Tested methods of teaching beginners to swim and dive. Coaching methods in competitive swimming. Theory and practice.

**S 16a. Swimming.** No credit. (Men) M W F, 2. (Women) Daily except Sat., 4. *Old Armory*. Mr. LITTLE.

Instruction in beginning, intermediate, and advanced swimming and diving. A special fee of ten dollars is charged for 18 hours of class instruction. Individual instruction (one or two persons) one dollar per lesson per person.

**S 18. Private Instruction in Tennis.** No credit. For men and women. Hours to be arranged. *Sage courts*. Mr. MURRAY. A special fee is charged, \$10 for ten lessons.

**S 18a. Tennis.** Undergraduate; credit one hour. For men and women. Daily except Sat., 4 and 5. *Risley courts*. Mr. DYE. Class instruction; registration limited to sixteen per hour.

**S 19. Badminton.** No credit. For men and women. Daily except Sat., 4. *Balch athletic fields*. Mrs. BAIRD.

**S 20. Outdoor Recreational Activities.** No credit. For men and women. Daily except Sat., 3. Mrs. BAIRD.

Canoeing, horseback riding, bicycling, hiking, map reading, camp craft and camp cooking. (For details consult Mrs. BAIRD).

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The following recreational activities are organized during Summer Session. Members of the faculty as well as all students are cordially invited to participate, and are urged to consult the bulletin board in the main lobby of Willard Straight Hall, and the weekly calendar for announcements.

**Recreational Folk Dancing.** Arranged by the Department of Physical Education and Willard Straight Hall. For men and women among the faculty and students. W, 5, *Recreation Room, Willard Straight Hall*; Th, 5, *Risley court yard*.

**Instruction in Social Dancing.** Arranged by the Department of Physical Education and Willard Straight Hall. T F, 7:15 p.m. *Recreation Room, Willard Straight Hall*. Fee, \$2.

**Tennis, Badminton and Golf Tournaments; Swimming Meet.** No great degree of skill is necessary for participation in these events. Those wishing to participate are asked to sign name, address and telephone number on the sports bulletin board in Willard Straight Hall during the first three days of the Summer Session. Further information may be obtained by calling Mrs. BAIRD, 3331, ext. 1152, between 10 and 11 a.m.

## PSYCHOLOGY AND BIOLOGICAL SCIENCES

### BACTERIOLOGY

**A 1. General Bacteriology.** Undergraduate and graduate; credit two or four hours. Lectures, daily except Sat., 1:40. Laboratory, daily except Sat., 2:30-4:30. *Dairy 119*. Professor STARK and Mr. SELEN.

An introductory course giving a general survey of the field of bacteriology, together with the fundamentals essential to further work in the subject. The morphology, physiology, and classification of bacteria; the culture of micro-organisms, simple and differential staining, and general bacteriological technique; the bacteriology of soil, air, water, sewage, milk, and foods; the principles of



immunity and the microbiology of disease. Laboratory fee, \$10, for those seeking four credit hours.

A 220. **Special Problems.** Credit and hours by arrangement. Professors SHERMAN and STARK.

Special problems in bacteriology may be elected by qualified students with the permission of the instructors.

## BIOLOGY

A 1. **General Biology.** Undergraduate; credit three hours. Lectures and discussions, daily except Sat., 11-1. *Roberts* 392. Acting Assistant Professor HOOD.

Designed for the general student seeking a cultural background as well as for the prospective teacher; a course in biological fundamentals, dealing with the nature of life, the processes and activities of living organisms, heredity, evolution, etc. Laboratory fee, \$2.50.

## BOTANY

A 1a. **General Botany—Anatomy and Physiology.** Undergraduate; credit three hours. Equivalent to Botany 1, first term. Lectures, daily except Sat., 2. Laboratory and conferences, daily except Sat., 3-4:30. *Plant Science* 141, 242. Mr. FORD.

The structures and life processes of the higher plants are examined in detail, with considerable attention to information necessary for more advanced or practical work with plants. Students taking this course may attend the field trips offered in connection with Botany A 1b. Laboratory fee, \$3.50.

S 1b. **General Botany—Morphology and Taxonomy.** Undergraduate; credit three hours. Equivalent to Botany 1, second term. May be taken in conjunction with Botany S 1a, or independently. Lectures, daily except Sat., 10. Laboratory, daily except Sat., 11-12:30. Three half-day field trips on Saturdays to be arranged. *Plant Science* 141, 262. Professor PETRY and Mr. PALMATIER.

Representatives of the principal groups of plants are studied with a view to acquainting the student with the plant kingdom as a whole. The principal families of ferns and flowering plants are examined and practice in identification is given.

The field work is intended to afford to teachers and others first-hand knowledge of the commoner plants of all the great groups. Facilities for collecting plant materials for teaching or other purposes will be provided. Laboratory fee, \$3.50.

A 13. **Trees and Shrubs.** Undergraduate and graduate; credit two hours. Lectures and laboratory, T Th, 2-5:30. Registration limited to twenty students; permission to register must be obtained from the instructor before registration is made. *Plant Science* 353. Professor MUENSCHER.

Intended for those who wish to know the woody plants in the field. The aim is to familiarize the student with the trees and shrubs of Central New York and to teach the main facts of structure, growth, habit, and distribution concerning them. An all day trip to the McLean Wild Life Preserve will be taken on a Saturday. Other trips will be arranged. Laboratory fee, \$1.50; deposit, \$3.

A 31. **Plant Physiology.** Undergraduate and graduate; credit four hours. Prerequisite, general botany or biology and elementary chemistry. Lectures, daily except Sat., 9. *Plant Science* 141. Laboratory, T W Th F, 10-1. *Plant Science* 227. Professor O. F. CURTIS.

This course is designed to acquaint the student with the important life processes of plants. Topics such as water-relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, and growth relations are studied in some detail and particular emphasis is placed both in laboratory and in classroom on discussion of the principles and their applications to growing plants. Laboratory fee, \$4; deposit, \$3.

A 117. **Taxonomy of Vascular Plants.** Undergraduate and graduate; credit four hours. Prerequisite, course A 1 or its equivalent. Lectures, M T W Th, 2. Laboratory, M T W Th, 3-6, F, 2-5. One or two all-day field trips will be arranged. *Plant Science* 211. Professor WIEGAND.

A study of the kinds of seed plants and ferns; their classification into genera, families, and orders; and field work on the local flora. Emphasis will be placed on

wild plants, but the more common cultivated plants will have some attention. The course is planned to follow course A 1 and to furnish an introduction to the knowledge of field botany and to the classification of the higher plants, in preparation for special work in various departments and as an aid in teaching. Instruction will be given in herbarium methods. Laboratory fee, \$4; deposit, \$5.

A 121. **Comparative Morphology of Fungi.** Undergraduate and graduate; credit four hours. Equivalent to Plant Pathology 121. Prerequisite, course in general botany and permission to register. Lectures, M W F, 9. *Plant Science* 336. Laboratory, fifteen actual hours a week, by arrangement. *Plant Science* 329. Professor FITZPATRICK.

An elementary synoptical course, designed to acquaint the student with the general field of mycology. Emphasis is placed on morphology and phylogeny, rather than on taxonomy, but abundant opportunity is given for field work. Correspondence in advance of arrival in Ithaca is urged. Laboratory fee, \$6; deposit, \$3.

A 123. **Plant Anatomy.** Undergraduate and graduate; credit four hours. Prerequisite, course A 1 or an equivalent and permission to register. Laboratory, M T Th F, 8-11:30. Hours for lectures to be arranged within these periods. *Plant Science* 228. Professor EAMES.

A course in the descriptive anatomy of vascular plants with emphasis on practice in interpretation and determination of material. Laboratory fee, \$5.

A 222. **Mycology.** Undergraduate and graduate; credit five hours. Prerequisite, a course in general botany, course A 121, and permission to register. Lectures or conferences, M W F, 11. Laboratory, twenty actual hours a week, by arrangement. *Plant Science* 329. Professor FITZPATRICK.

An advanced course designed for students who wish to specialize in botany or plant pathology. A comprehensive study of the morphology, taxonomy, and phylogeny of the fungi. Emphasis is placed on field work, with extensive practice in determination of material.

The groups of the fungi are studied in successive summers, usually in the following order: (1) Phycomycetes, (2) Ascomycetes and Fungi Imperfecti. (3) Basidiomycetes. By repeating the course, the student may obtain in three summers the equivalent of Plant Pathology 221 and Plant Pathology 222. He may begin with any one of the three groups and need not take them in unbroken sequence. The needs of the prospective class will determine the group selected for study each summer. Correspondence as long as possible in advance of arrival in Ithaca is urged. Laboratory fee, \$6; deposit, \$5.

A 145. **Special Problems with Plants.** Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the fields of general or taxonomic botany, anatomy, comparative morphology, mycology, cytology, plant physiology, economic botany, paleobotany, plant pathology, or genetics. A member of the staff must supervise the work.

## ENTOMOLOGY

A 12. **General Entomology.** Undergraduate and graduate; credit three hours. Prerequisite, Biology 1 or Zoology 1 or its equivalent. Lectures, daily except Sat., 10. *Comstock* 200. Practical exercises, M W F, 1:40-4. *Comstock* 200. Professor MATHESON.

This course includes lectures and demonstrations on the characteristics of the orders and families of insects with the study of their habits, life-histories, and relations to other animals and to plants. The laboratory work consists of the study of the structure, ecology, metamorphosis, and classification of insects. Field trips to study insects in their natural habitats are an important feature. Each student is required to collect and prepare a typical collection of insects. Opportunities are given for the rearing of insects in the Insectary, and special work is offered to suit the needs of individual students. Textbook: *Comstock's Manual for the Study of Insects* (1936 edition.) Equipment: a good hand lens,

several insect cases, insect pins, and labels. These can all be purchased in Ithaca. Laboratory fee, \$2.50.

A 16. **The Ecology of Insects.** Undergraduate and graduate; credit two hours. Prerequisite, Biology 1 or Zoology 1, and Entomology 12, or equivalents. Lectures, T Th S, 8. *Comstock* 145. Laboratory studies and field trips, T Th, 1:40-4. Professor PALM.

A general study of insects in relation to their environment. Attention will be given to life history studies in the field and insectary; the role that insects play in different natural associations; the relations between structure, instinct, habitat, and ways of living. Photographing insects in natural color in the field and laboratory is included as part of the course. Laboratory fee, \$2.50.

A 30. **Elementary Systematic Entomology.** Undergraduate and graduate; credit three hours. Twenty actual hours a week, by appointment. *Comstock* 270. Professors MATHESON and READIO.

This course will consist in the collecting, mounting, and identification of the common insects of the Ithaca region. Special methods of mounting insects for the museum and for teaching will be stressed. Field trips for collecting will be taken regularly and the study of all stages of insects emphasized. Each student will be expected to present a collection of at least 400 insects, properly labeled and identified. Laboratory fee, \$2.50.

A 41. **Elementary Economic Entomology.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 9. *Comstock* 145. Practical exercises, M W F, 1:40-4. *Comstock* 100. Professor READIO.

Includes lectures, conferences, and discussions on the life histories and habits of injurious insects, together with methods of control. The practical exercises include a study of the more important insecticides and of as many of the common pests as time permits. There will be a number of field trips. Laboratory fee, \$2.00.

## GENETICS

A 101. **General Genetics.** Undergraduate and graduate; credit four hours. Prerequisite, two courses of a biological nature, and permission to register. Courses in cytology and in taxonomic botany or zoology will be found helpful. Lectures, daily except Sat., 8. Laboratory, M W F, 1:40-4. Conferences to be arranged. *Plant Science* 146. Professor FRASER.

An introductory course designed to acquaint the student with the fundamental principles of heredity and variation. Discussions of simpler cases of inheritance, gene interaction, inheritance of sex, sex and gene linkage, quantitative inheritance, the genetics of inbreeding and outbreeding, cytoplasmic inheritance, and mutation, with suggestions as to the relation of genetical principles to eugenics. Laboratory studies of hybrid material in plants and breeding experiments with the vinegar fly, *Drosophila*. Laboratory fee, \$3.

A 150. **Special Problems in Genetics.** Undergraduate and graduate; credit one or two hours. Work at the convenience of the student. Prerequisite, A 101 or its equivalent, and permission to register. Professor FRASER.

## PLANT PATHOLOGY

A 1. **Diseases of Plants and their Control.** Undergraduate and graduate; credit two to four hours. Prerequisite, permission to register. Lectures, M W F, 8, and other times by arrangement. *Plant Science* 336. Laboratory, the completion of a minimum of five exercises for each credit hour, with personal conferences. Conferences by arrangement. Laboratory at the student's convenience. Professor MIX.

A fundamental course treating of the nature, cause, and control of plant diseases, illustrated by studies of the more common diseases of cultivated crops. The method of conducting the course enables the individual student to study diseases which are of particular interest to him. The work is designed to meet the special needs of teachers of agriculture in secondary schools, teachers of biology, and county agents, as well as undergraduates in Cornell and other colleges. Laboratory fee, \$1.25 a credit hour; breakage deposit, \$5.

A 121. **Comparative Morphology of Fungi.** Credit four hours. For description, see under **Botany**.

A 222. **Mycology.** Credit five hours. For description, see under **Botany**.

### PSYCHOLOGY

S 1. **Introductory Psychology.** Undergraduate; credit two hours. Daily except Sat., 9. GS C. Assistant Professor KREEZER.

This course deals with the basic problems and principles of human psychology and is designed as a general foundation for the study of experimental, social, animal, and child psychology, for psychotechnology, and for the psychology of the abnormal. Class demonstrations will supplement the lectures and recitations. Textbook: Boring, Langfeld and Weld, *Introduction to Psychology*.

S 7a. **Introduction to Applied Psychology.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Morrill* 42. Dr. RYAN.

A study of psychological problems in vocational guidance, medicine, law, athletics and such problems of every-day life as study methods, and highway safety.

S 7b. **Psychology in Business and Industry.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Morrill* 42. Dr. RYAN.

A study of psychological problems involved in various aspects of business, such as selection of employees, industrial production, personnel, advertising, selling, and market research.

S 9. **The Psychology of Personality.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Morrill* 41. Professor WELD.

A critical study of the term personality, with emphasis laid upon the unstable, the maladjusted, and the introverted.

S 10. **Social Psychology.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Morrill* 42. Professor WELD.

A study of the human individual in his relations to his fellows. The nature of the social environment, the social development of the individual, and his place in the social group.

S 15. **Psychology of the Abnormal.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Morrill* 41. Assistant Professor KREEZER.

A survey of the psychological disorders and deficiencies: Maladjustments of normal children and adults; mental deficiency; hysteria, neurasthenia, and psychasthenia; schizophrenia, manic-depressive psychoses, and organic psychoses. A consideration of psychological, physiological, and genetic factors.

S 29. **Seminary in Psychology.** Graduate; credit two hours. Primarily for advanced students and for resident doctors in the Summer Research Station in Psychology. Hours to be arranged. *Seminary Room, Morrill*. Professor BENTLEY.

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**Summer Research Station in Psychology.** The facilities of the Department (laboratory, library, and seminary) have been placed at the disposal of investigators in psychology during the summer period. Those holding the doctoral degree will be given the status of resident doctor with the privileges of University membership without the payment of tuition or other fees. Others will pay the usual fees of the Cornell Summer Session. Application for admission to the Research Station should be made to the Secretary, Department of Psychology, Morrill Hall, Cornell University, Ithaca, N. Y.

### ZOOLOGY

S 1a. **Introductory Zoology.** Undergraduate; credit three hours. Equivalent to Zoology I, first term. Lectures, daily except Sat., 9. *McGraw* 203. Laboratory, M W, 1:40-4 and an additional period on F of 1st, 3rd and 5th weeks of Session. *McGraw* 104. One field trip to be arranged. Assistant Professor YOUNG and Mr. GILBERT.

A consideration of the structural and physiological organization of an animal type as viewed from the standpoint of the organism as a biological unit. Also an introduction to some of the fundamental biological phenomena such as mitosis,

gametogenesis, development and inheritance. Students taking this course may elect to go on the field trips offered in connection with Zoology S 1b. Laboratory fee, \$2.50.

**S 1b. Intermediate Zoology.** Undergraduate; credit three hours. Equivalent to Zoology 1, second term. Lectures, daily except Sat., 11. *McGraw* 203. Laboratory T Th, 1:40-4 and an additional period on F of 2nd, 4th and 6th weeks of Session. *McGraw* 104. Two field trips to be arranged. Assistant Professor YOUNG and Mr. GILBERT.

A study of a graded series of animals, stressing the nature of the progressively improved body plans represented in the major divisions of the kingdom. Also considering classification, interrelationships, adaptations, critical epochs in the pathway of descent, and finally the zoology of the human species. Students taking this course are invited to go on the field trip arranged in connection with Zoology S 1a. Laboratory fee, \$2.50.

Courses 1a and 1b may be taken simultaneously for six hours of credit. The field trips of the two courses are planned to give opportunity for the observation of animals in their natural habitats.

**A 8. Systematic Vertebrate Zoology and Ecology.** Undergraduate and graduate; credit four hours. Lectures, M T W Th, 1:40-2:30. Laboratory and field work, M T W Th, 2:30-5:30. *McGraw*. Several all-day trips are required. Occasionally a field trip, 5:30-8 a.m. or 5-8 p.m., may be substituted for the regular periods. Professor WRIGHT and Assistant Professor HAMILTON.

Lectures on fishes, amphibians, reptiles, birds, and mammals; their habits, life-histories, coloration, respiration, locomotion, reproduction, and adaptations, together with their classification, nomenclature, characters, and relationships. Laboratory study of the parts employed in the classification of these groups, with training in the identification of two hundred and forty North American species. Field work is partly to give practice in field observations and in ready identification of local vertebrates in their natural environment, and partly to introduce some ecological methods. Textbook: *Jordan's Manual of Vertebrates of the North-eastern United States*, new edition. Laboratory fee, \$4.50.

**[S 11. Comparative Anatomy of the Vertebrates.** Undergraduate and graduate; credit four hours. Prerequisite, Zoology 1 or its equivalent. Not given in 1940.]

**S 16. Invertebrate Zoology.** Undergraduate and graduate; credit four hours. Not a substitute for Zoology 16 offered during the regular terms of the academic year. Prerequisite, Zoology 1a and 1b, or their equivalents. Lectures, discussions, laboratories and field trips daily except Sat., 9-12:20. *McGraw* 207. Dr. HEMING.

The course is designed to take advantage of the exceptional facilities afforded by the environs of Ithaca for summer work in biology. Specifically, provision is made for the student to gain first-hand knowledge of living invertebrates in their natural habitats, and to become familiar with methods of collecting. Field trips will constitute an important part of the course. The laboratory and lecture periods are used for the study of taxonomic characters of the various phyla from the protozoa to the prochordates, and for practice in the identification of local species. Laboratory fee, \$3.

#### HISTOLOGY AND EMBRYOLOGY

The courses in histology and embryology are given in the histological laboratories in *Stimson Hall*. The department is well equipped for instruction in both subjects, having a large and adequate supply of modern microscopical instruments and an extensive collection of demonstration material for both histology and embryology. Microscopes are furnished by the department. Consultation with the instructors previous to registration is advised.

**S 101. Histology.** Undergraduate and graduate; credit four hours. No prerequisite, but previous work in biology, zoology, and botany or physiology is recommended. Lectures, daily except Sat., 12. Laboratory, three hours every morning except Saturday. *Stimson*. Assistant Professor SNOOK and assistants.

For students of biology or those preparing for medicine. The cell and cellular origin of the body; the structure and development of its component tissues. Each

student will prepare or receive a series of typical microscopic preparations. Laboratory fee, \$6.

S 102. **The Organs.** Undergraduate and graduate; credit four hours. Opportunity will be afforded a limited number of students for a laboratory study of the histology of the organs. Laboratory 2-5 every afternoon except Sat., and conferences at hours to be arranged. *Stimson*. Professor KINGSBURY and Mr. BATES. Laboratory fee, \$6.

S 104. **Embryology of Vertebrates.** Undergraduate and graduate; credit four hours. Prerequisite, a course in the histology of the tissues or a satisfactory equivalent in other biological work involving training in the use of the microscope. Lectures, daily except Sat., 9. Laboratory, three hours every morning except Sat. *Stimson*. Professor KINGSBURY and Mr. VAN DYKE.

For students of biology or those preparing for medicine. Preparation and study of embryological specimens from all the chief groups of vertebrates. Emphasis is placed on the embryology of the chick. The student also acquires a knowledge of special methods useful in embryological work. Laboratory fee, \$6.

#### ORNITHOLOGY

A 9. **Ornithology.** Undergraduate; credit two or three hours. Lectures, M W F, 11. *Fernow* 122. For three hours credit, laboratory M W, 1:40-4:30, or T Th, 1:40-4:30. *Fernow* 210. Field work, M W or T Th, 5:30-8 a.m. For two hours credit, field trips and laboratory demonstrations, M W F, 8-10. Professor A. A. ALLEN, Assistant Professor KELLOGG, and Dr. E. G. ALLEN.

This course provides an introduction to the study of birds and familiarity with the local species. The lectures cover classification, migration, coloration, song, nest-building, eggs, care of young, methods of attracting birds and their economic importance. The laboratory work with bird skins, nests and eggs gives an intimate knowledge of the birds of eastern North America, their life histories and distribution, and familiarity with the use of manuals. The aim of the field work is the identification of birds by their songs and habits as well as by their plumage. Each student should be provided with field glasses. Laboratory fee, \$3.

A 126. **Advanced Ornithology.** Undergraduate and graduate; credit two hours. Lectures, M W, 9. *Fernow* 122. Laboratory, M W, 1:40-5. *Fernow* 212. Professor A. A. ALLEN. Registration limited to 15 students. Prerequisite, Ornithology A 9 or its equivalent. With special permission may be taken with A 9.

The structure and classification of the birds of the world; geographical distribution; the literature and institutions of ornithology. Laboratory fee, \$3.

A 131. **Applied Ornithology.** Undergraduate and graduate; credit two hours. Lectures, T Th, 9. *Fernow* 212. Laboratory, T Th, 10-1. *Fernow* 212. Assistant Professor KELLOGG. Registration limited to 15 students. Prerequisite, A 9 or its equivalent (may be taken at the same time).

This course is intended primarily for students planning to teach biological science or to engage in professional work in ornithology. Field collecting, preparation of specimens, and natural history photography are emphasized together with the food and feeding habits of birds; class room, museum and biological survey methods. Students are expected to provide their own cameras. Laboratory fee, \$3.

#### SPECIAL PROBLEMS AND RESEARCH

B 99. **Special Problems with Animals.** Undergraduate and graduate; credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the field of general zoology, invertebrate zoology, systematic vertebrate zoology, comparative anatomy of vertebrates, ornithology, histology, embryology, general entomology, systematic entomology, economic entomology, or general biology. A member of the staff must supervise the work.

## GEOGRAPHY, GEOLOGY, AND METEOROLOGY

## GEOGRAPHY AND GEOLOGY

It is the purpose of this department to meet the needs of teachers of geography and general science, and to provide courses of practical and cultural value to college students of geography and geology. The work embraces lectures, laboratory, and field instruction in physical and economic geography, and in the elements of geology. The environs of Cornell University are rich in phenomena of geographic and geologic interest. General field work consequently is especially emphasized at Ithaca, and technical field instruction is provided for men students at a camp in Pennsylvania. Courses S 1, S 5, S 9, S 10, and S 21 successfully completed are an adequate background in geology for entrance to study for the M.S. degree in geology at Cornell.

The laboratories are well equipped with apparatus and illustrative material. The material includes teaching and reference collections of minerals, rocks, fossils, maps, photographs, models, and more than five thousand lantern slides. The lecture rooms and laboratories are in *McGraw Hall*.

Students planning to work in the department at Ithaca should, if possible, register for courses on Monday, July 8, at Barton Hall. Registration for the Summer Field School in Pennsylvania should be by correspondence as early as possible in the spring.

## LECTURE COURSES IN GEOGRAPHY AND GEOLOGY

**S 1. Physical Geography.** Undergraduate; credit two hours. Daily except Sat., 9. *Geological Lecture Room, McGraw* (first floor, south end). Professor von ENGELN.

An introductory course in physical geography, including discussion of the nature and form of the continents; the structure and development of the relief of the land; the physiographic cycle in humid and arid regions; glaciers; the glaciation of North America; the elements of oceanography.

The lectures are illustrated by lantern slides, maps, models, and charts. Students registering in course S 1 are advised to take also the related courses S 9 and S 10. Credit for geology A, regular session, will be allowed for successful completion of the four courses S 1, S 5, S 9, S 10.

**S 2. Economic Geography.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Geological Lecture Room, McGraw*. Professor von ENGELN.

The effect of geographic factors on the production and distribution of commodities. Discussion of the origins and regional background of industry and commerce; the volume, extent, and utilization of important products and resources; location and growth of cities. Recommended for teachers who wish broad training in regional geography.

**S 5. Geology.** Undergraduate; credit two hours. Daily except Sat., 10. *Geological Lecture Room, McGraw*. Assistant Professor BURFOOT.

An introductory course in geology, consisting of lectures and readings in textbook upon the following topics: origin of the earth; geological history of the earth; materials of the earth's crust and their arrangement, as well as the forces modifying them; vulcanism, earthquakes, etc.; development of life on the earth.

The lectures will be illustrated with lantern slides, models, maps, and specimens. Students registering for this course are urged to take the laboratory course S 9 and, if possible, course S 10. Credit for Geology course 100, regular session, will be allowed only for successful completion of all three courses S 5, S 9, S 10; for course A, S 1, S 5, S 9, S 10.

## LABORATORY AND EXCURSION COURSES IN BOTH GEOGRAPHY AND GEOLOGY

**S 9. Geology, Laboratory Course.** Undergraduate; credit one hour. W F, 1:40-4. *General Geological Laboratory, McGraw* (first floor, middle entrance). Assistant Professor BURFOOT and Dr. WELLS.

This course is designed to supplement courses S 1 and S 5. A study will be made of the more common structural phenomena; of the interpretation and uses

of topographic and geological maps; of characteristic life forms developed in different geological periods; and of the more common rocks and minerals. Laboratory fee, \$1.

**S 10. Geography and Geology, Field Course.** Undergraduate and graduate; credit one hour. This course should be elected by all those registering in course S 1 or S 5. With courses S 1 and S 9 it affords a comprehensive course in physical geography; with courses S 5 and S 9 it will give a similarly broad training in elementary geology, as the dynamic phases of geology are emphasized on the excursions. Mimeographed outlines of the excursions are to be secured from one of the bookstores by each student desiring credit. See also a pamphlet, obtainable in Ithaca, on *The Geography and Geology of the Cornell Region*. Professor von ENGELN, Assistant Professor BURFOOT, and Dr. WELLS.

Students desiring credit or certificates of attendance must register in S 10 and will be given preference in accommodations.

Those desiring University or entrance credit must take field notes and hand in written reports. Excursions 1, 2, 3, 4, 5, are required of all students in the course, and in addition for one hour's credit they must take any two of the following four all-day excursions: 6, Watkins Glen; 7, Northern Pennsylvania; 8, Lake Ontario; and 9, Carpenter's Falls.

Meeting place and time announced in mimeographed outlines or by bulletin. Meet for first excursion, Monday, July 15, at *McGraw Hall*, 2 p.m. Excursions 1-5, Monday afternoons; 6, 7, 8, 9, all day. On those excursions to which a cost is attached for bus or railway fares, persons wishing to go must register at the department and secure tickets in advance of the date of the trip. For bus fare on the first excursion, bring 10 cents. The total cost of the trips will be from \$7 to \$10, according to the choices made. Announcements regarding field trips are posted on the middle door of *McGraw Hall* and all arrangements for reservations and tickets are made in the Geological Department Office, middle entrance, *McGraw Hall*. The trips are open to others besides the members of the excursion class as far as accommodations are available. Stops are made at points of interest, explanations given, questions asked, and discussion invited.

#### OUTLINE OF EXCURSIONS: COURSE S 10

##### *Monday Afternoons*

1. **Cascadilla Creek.** Meet at the south entrance to *McGraw Hall* at 2 p.m. Bring registration slips and excursion outline. To study the origin and nature of sedimentary rocks, also processes of erosion, transportation, deposition, and cementation. A study in detail of one of the large gorges and its special features. Opportunity for the collection and identification of a variety of rock kinds is afforded on this trip. Bring ten cents for return bus fare. July 15.

2. **Snyder Hill.** By bus. No tickets; bring 25 cents in change for bus fare: To become acquainted with the lie of the land about Cornell, to learn the place names and nature of the broader physiographic features, studying the maturely dissected plateau and processes of weathering. The top of the hill is a vantage point from which a good view of the lake and the land for miles to the north, east, and west may be had. July 22.

3. **Portland Point.** By bus. Tickets. To study rock structure; intrusion of igneous rocks into sedimentary formations; rock-folding and small scale faulting and associated phenomena; vein-formation; fossil content of strata; economic utilization for cement. July 29.

4. **Enfield Gorge and Falls.** By bus. Tickets. To study the relations of pre-glacial and hanging valleys and the postglacial and interglacial gorges, their origin and features. Joint-plane guidance of stream courses. Ride to the head of the gorge, and walk through it to the crest of Lucifer Falls. Swim and picnic at the close of the excursion at the lower Enfield pool. August 5.

5. **Terminal Moraine, Kames, Esker, and Outwash Deposits.** By bus. Tickets. Varna, Freeville, and South Cortland. To study a massive morainic loop and the glacio-fluvial deposits which are well developed in this section. August 12.



*All-day Excursions*

6. **Watkins Glen.** By bus. Tickets in advance. Watkins Glen is one of the most beautiful scenic spots in the country. The party will study the gorge, its pot holes, and its falls in detail; and consider its relation to the Seneca Lake valley in comparison with the conditions at Ithaca in relation to the Cayuga valley. Luncheon at the head of the gorge. July 20.

7. **Northern Pennsylvania.** By bus. Tickets in advance. Geology of a coal mine and the physiography of the Susquehanna valley at Wyalusing Rocks. Stops will be made to study Appalachian structure, folds and faults, and the stratigraphy of a complete section from the Portage beds of the Devonian through the Pottsville conglomerate of the Pennsylvanian. An exceptionally fine scenic trip over the Roosevelt Highway through southern New York and northern Pennsylvania. July 27.

8. **Sand Dunes of Lake Ontario.** By bus. Secure tickets in advance. Take lunch. To study glacial drainage phenomena, overflow channels, 'fossil Niagara' at the Clark Reservation, high level lake deposits, drumlins, and the extensive and characteristic sand dune area at the east end of Lake Ontario. At the lunch hour there will be an opportunity for bathing in Lake Ontario. August 3.

9. **Carpenter's Falls and Fillmore Glen.** By bus. Secure tickets in advance. Take lunch. Have also bag or small basket for specimens. Fossil collecting. Visit a remote, unexploited gorge and waterfall. Demonstration, by means of the Tully l. s., of stratigraphic correlation over a wide area. Visit a small remnant of virgin forest at the head of Skaneateles Lake. At close of trip swimming at Fillmore Glen State Park. August 10.

## FIELD SCHOOL

S 21. **Summer Field School in Geology.** Intended for men students who desire to study geology in the field. The camp is located in central Pennsylvania near Tyrone and instruction covers a period of six weeks, from June 17 to July 27. Undergraduate and graduate; six hours of college credit are given upon successful completion of the course. Fixed expenses, including the regular tuition fee of \$55, are approximately \$145. Registration is limited to men. Professor NEVIN.

The region selected is especially suitable for field work in geology. Sedimentary rocks from Cambrian to the Coal Measures are represented, with a total thickness of some 27,000 feet. Folds and faults are extensively developed, and their effect on the topography is very marked. Instruction includes reconnaissance and detailed mapping. The course, open to men students with either elementary or advanced training in geology, will be conducted to meet the individual needs of the student. A special circular containing detailed information will be furnished upon request.

## METEOROLOGY

A 1a. **Meteorology.** Undergraduate and graduate; credit two hours. Lectures and discussions. Daily except Sat., 10. *Plant Science* 143. Professor MORDOFF.

This course is adapted to the needs of teachers and students in subjects of which the weather is an important factor, particularly teachers of general science, physical geography, and agriculture. It is designed to acquaint the student with the laws governing the primary and secondary circulation of the atmosphere, and with the development, progression, and conditions that attend cyclones, tornadoes, and other atmospheric phenomena. Attention is given to the principles and practice of weather forecasting from weather maps and from local observations. Students taking the course at the graduate level will be assigned additional work.

A 1b. **Meteorology, Laboratory Course.** Undergraduate and graduate; credit one hour. Two laboratory periods to be arranged. Must be accompanied by course A 1a. *Plant Science* 114. Professor MORDOFF.

The work consists in the study of the principal weather and climatic elements with the aid of maps, charts, and instruments. The various meteorological instruments will be studied, as well as the methods of taking and recording the

observations. Opportunity will be given the student for making practice forecasts. Students taking the course at the graduate level will be assigned additional work.

A 2. **General Climatology.** Undergraduate and graduate; credit one hour. Must be accompanied or preceded by course A 1. Lectures and discussions M W F, 9, or other periods to be arranged. *Plant Science* 114. Professor MORDOFF.

Designed to give a general knowledge of climatology and of the various climates of the United States. It is planned especially to meet the needs of teachers of general science, physical geography, and agriculture.

A 6. **Special Problems.** Undergraduate and graduate; credit and hours by arrangement. Professor MORDOFF.

Special work in Meteorology and Climatology may be elected by qualified students with the permission of the instructor.

## ASTRONOMY

S 1. **General Astronomy.** Undergraduate; credit two hours. Daily except Sat., 10. *Rockefeller* 110. Six evening observing periods during the term at the Observatory. Professor BOOTHROYD.

An introductory descriptive course illustrated by observations, models, and lantern slides.

S 2. **Laboratory Astronomy.** Undergraduate; credit one hour. T Th, 2-4, and one clear T or Th evening in each of the first five weeks. *Observatory and Rockefeller* 357. Professor BOOTHROYD.

This course must be preceded or accompanied by course S 1.

Observations to acquaint the student with the constellations and the most important facts about planets, sun, and stars, together with laboratory exercises dealing with time, seasons, eclipses, meteors, and variable stars.

S 183. **Navigation and Nautical Astronomy.** Undergraduate and graduate; credit three hours. Lectures and recitations. M W F, 9. *Rockefeller* 357. Laboratory, T Th, 2-4. *Rockefeller* 357, with six suitably arranged observation periods at the Observatory. These periods will be arranged during the first half of the session and will be used for sextant and compass observations on sun, moon, and stars. This observational data is used for the final class and laboratory exercises as a test of the student's ability to find his position on the earth's surface. Professor BOOTHROYD.

This course may be taken by Civil Engineering students to satisfy the required work in course 182, the extra hour credit being counted as a Civil Engineering elective. Such students will make some of the required observations with a surveyor's transit instead of with the sextant and compass.

The course is designed to give the student not only an understanding of the fundamental problems of Aviation and Navigation but the ability to make his own observations and to find his position therefrom.

S 181. **Special Problems.** Undergraduate and graduate; credit and hours by arrangement. Professor BOOTHROYD.

Special work in Astronomy or Astrophysics may be elected by qualified students with the permission of the instructor.

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Courses S 1 and S 2 offer an introduction to astronomical ideas and methods and give a good background for teachers who may wish to prepare more thoroughly for teaching general science or geography.

Those who take both courses, S 1 and S 2, and those who take courses S 1 and S 183 may count three hours toward fulfilling half of the requirement of Group 4 in the College of Arts and Sciences.

**Demonstrations at the Observatory.** A series of lectures will be offered on Monday, Wednesday, and Friday evenings when clear. These will be illustrated by actual observations with the 12-inch equatorially mounted telescope as well as by diagrams and astronomical photographs. These lectures and demonstrations carry no credit except for those registered in course S 1.

These demonstrations will be general and open to all Summer Session students. During the six weeks a connected series of six lectures will give a background of astronomical knowledge sufficient to enable one to understand and appreciate more fully astronomical phenomena. The first lecture will be on Wednesday and Friday of the first week and the second, third, fourth and fifth lectures will be given on Monday, Wednesday and Friday of those weeks, while the sixth lecture will be given on Monday and Wednesday of the sixth week. The lectures begin at 8 p.m.

Admission to the lectures and demonstrations is by tickets, which may be obtained at the Summer Session office, 245 *Goldwin Smith Hall*. Summer Session students and faculty, and members of their immediate families, may secure tickets without charge; a charge of 25 cents is made to others. The number of tickets issued for any one evening is limited to 35. When the weather is doubtful on a given evening, the Summer Session will notify inquirers whether the Observatory will be open, such inquiries to be made between 3:30 and 4 p.m.

## CHEMISTRY

The courses announced below correspond entirely or in part with courses given during the regular session of the University. For regular students the requirements for admission to the various courses will be the same as during the year.

Teachers may be admitted to any course for which their general training or experience may be considered to prepare them. Efforts will be made to meet the individual needs of teachers by arranging and modifying the work, within reasonable limits, so as to fulfill the particular requirements in each case.

In some laboratory courses a deposit to cover the usual laboratory fee and also breakage and other variable items of expense is charged. At the end of the course the laboratory fee and breakage charge are determined and the unexpended balance is returned to the student. In other courses a laboratory fee of fixed amount is charged. The amount of the deposits and laboratory fees are indicated in the descriptions of courses.

All courses in Chemistry are given in the *Baker Laboratory of Chemistry*.

S 102. **General Chemistry.** Undergraduate; credit six hours. For students who have not had high school chemistry. Lectures, daily except Sat., 8. *Main Lecture Room*. Professor LAUBENGAYER and Dr. EATON.

The lectures deal with the fundamental theories and laws of chemistry and with the more common elements and their compounds. They are profusely illustrated by experiments.

Recitations, daily except Sat., 9. *Room 22*. Professor LAUBENGAYER.

The recitations deal with the subject matter of the lectures and with the experimental work in the laboratory and afford thorough drill in the solution of chemical problems.

Laboratory, daily except Sat., 10-1. *Rooms 177 and 150*. Professor LAUBENGAYER and Dr. EATON.

A series of experiments designed to illustrate the fundamental laws of chemistry and to acquaint the student with the principal elements and their compounds. The equivalent of 102b may be obtained by attending the last three weeks of the Summer Session. Deposit, \$20.

S 104. **General Chemistry.** Undergraduate; credit six hours. For students who have had high school chemistry. Lectures, recitations, and laboratory practice at hours to be arranged. Professor LAUBENGAYER and Dr. EATON. Deposit, \$20.

S 205. **Introductory Qualitative Analysis.** Undergraduate; credit three hours. Must be taken with course S 206. Lectures and recitations, daily except Sat., 8, and T Th, 11. *Room 206*. Dr. LONG.

A study of the application of the theories of general chemistry to the systematic separation and detection of the common elements and acid radicals.

S 206. **Introductory Qualitative Analysis.** Undergraduate; credit three hours. Must be taken with course S 205. Laboratory, daily except Sat., 9-1. *Room 252*. Dr. LONG.

A study of the properties and reactions of the common elements and acid radicals; the qualitative analysis of a number of solutions and solid compounds. Deposit, \$25.

S 210. **Introductory Qualitative Analysis.** Shorter course. Lectures and laboratory practice. Undergraduate; credit three hours. Lectures, daily except Sat., 8. Room 206. Laboratory, daily except Sat., 9-12. Room 252. Dr. LONG.

The properties and reactions of the common elements and acids, and their detection in various liquid and solid mixtures. Deposit, \$20.

S 225. **Introductory Quantitative Analysis.** Shorter course. Lectures and laboratory practice. Undergraduate; credit three hours. Lectures, M W F, 11. Room 206. Professor NICHOLS. Laboratory, daily except Sat., 8-11. Room 252. Professor NICHOLS.

A study of the fundamental principles of gravimetric and volumetric analysis, and the analysis of various substances by these methods. Deposit, \$20.

S 230. **Advanced Quantitative Analysis.** Recitations and laboratory practice. Undergraduate and graduate; credit three hours. Laboratory, daily except Sat., 8-1. Room 252. Professor NICHOLS.

The calibration of weights and volumetric apparatus; the analysis of ferrous and non-ferrous alloys, silicates, and organic substances by various gravimetric, volumetric, and combustion methods. Deposit, \$20.

[S 275. **Quantitative Microanalysis.** Not given in 1940.]

S 305. **Introductory Organic Chemistry.**

A. Undergraduate and graduate; credit three hours. Lectures and written reviews. Daily, 8, throughout the session, and also daily, 9, during the first three weeks. Room 207. Dr. BRUCE.

The lectures discuss systematically the more important compounds of carbon, their occurrence, methods of preparation, reactions, and uses. The work covered is equivalent only to the first half of the year course. Students who wish a complete course must register in Chemistry S 375.

S 310. **Introductory Organic Chemistry.** Undergraduate and graduate.

A. Credit one to three hours. Laboratory practice and oral reviews. Open to those who have had or who are taking S 305 A. Hours to be arranged in the morning. Room 250. Dr. MILLER. Deposit, \$35.

B. Credit one to three hours. Laboratory practice and oral reviews. Open to those who have had S 305 A and S 310 A. The course is a continuation of Part A. Hours to be arranged in the mornings. Dr. MILLER. Deposit, \$35.

The student prepares a number of typical compounds and familiarizes himself with their properties, reactions, and relations.

S 320. **Advanced Organic Chemistry.** Undergraduate and graduate; credit two or more hours. Laboratory practice at hours to be arranged, in the mornings. Dr. MILLER.

An advanced course in the preparation of organic compounds, involving the use of the more difficult methods and of the less common reagents. Fee variable.

S 375. **Introductory Organic Chemistry.** Undergraduate and graduate; Shorter course. Lectures and written reviews. Credit four hours. Daily, 8-10. Room 207. Laboratory practice. Credit one or two hours. Hours to be arranged in the mornings. Room 250. Dr. BRUCE, Dr. MILLER. Deposit, \$15-\$20.

A shorter course in organic chemistry, designed for students in pre-medical, biological, agricultural and home economics curriculums.

S 405. **Introductory Physical Chemistry.** Undergraduate and graduate.

A. Credit three hours. Lectures, daily except Sat., 8, and one other lecture, T, 2-3:30. Room 7. A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Assistant Professor HOARD.

A systematic presentation of modern chemical theory. The subject matter includes gases, liquids, and solids; the elements of thermochemistry and thermodynamics; the phase rule and the theorem of Le Chatelier; the theory of solution; chemical equilibrium.

B. Credit three hours. Lectures, daily except Sat., 9, and one other lecture, Th, 2-3:30. Room 7. A knowledge of calculus and elementary organic chemistry

is prerequisite to this course, except by special permission. Assistant Professor HOARD.

A continuation of Part A. The subject matter includes elementary electrochemistry and electrolytic conductance; ionization and ionic equilibria; reaction velocity and catalysis; miscellaneous topics in modern physical chemistry.

S 410. **Physical Chemistry Laboratory.** Undergraduate and graduate.

A. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor HOARD and Mr. JOYNER. Open only to those who have taken or are taking course S 405 or its equivalent. With the data obtained in the laboratory as a basis, detailed reports are written covering each of the following topics: molecular weight determination by vapor density; boiling point and freezing point methods; vapor pressure; viscosity; distillation of liquid mixtures.

B. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor HOARD and Mr. . Open only to those who have taken or are taking course S 405 B or its equivalent. The course is a continuation of Part A. The following topics are considered: dissociation; solubility; reaction velocity and catalysis; indicators; thermochemistry; diffusion; colloids and absorption; phase rule studies.

S 465. **Laboratory Practice in Physical Chemistry.** Undergraduate and graduate; credit one to three hours. Laboratory periods to be arranged. Assistant Professor HOARD and Mr. JOYNER.

This course is designed to afford opportunity for special laboratory practice in physical chemistry, colloid chemistry, or electrochemistry.

S 530. **Introductory Chemical Microscopy.** Undergraduate and graduate. Lectures and laboratory practice. Credit three hours. Prerequisite, physical chemistry, or special permission. Lectures, M W F, 10. *Room 377.* Laboratory, M W F, 11-1, T Th, 10-1; additional periods may be arranged. *Room 378.* Professor MASON and Mr. McCONE.

Microscopes and their accessories, as applied to problems in chemistry and technology. Micrometry and particle size determination; quantitative analytical methods; optical properties of crystals and other double refractive materials; physical-chemical studies; illumination, photomicrography, and ultramicroscopy; recognition of textile and paper fibers. Laboratory fee, \$5.

S 535. **Advanced Chemical Microscopy.** Undergraduate and graduate. Laboratory practice. Credit two or three hours. Prerequisite or parallel, course S 530. Laboratory periods and conference hours to be arranged. *Room 378.* Professor MASON.

Practice in the examination and analysis of inorganic substances containing the more common elements, with special reference to rapid qualitative methods and to the analysis of minute amounts of material. Laboratory fee, \$5.

Students not desiring University credit, who wish to secure a working knowledge of Chemical Microscopy in the shortest possible time, may arrange by advance correspondence with the instructor to cover the parts of both of the above courses which best meet their needs.

S 195, S 295, S 395, S 495, S 595. **Research.** Undergraduate and graduate; credit one to six hours. Seniors and graduate students, by special permission, may elect research in the fields of Inorganic, Analytical, Organic, or Physical Chemistry, or Chemical Microscopy, under the direction of the respective members of the staff of instruction. Fee variable.

S 1000. **Structure of Molecules and Atoms from the Standpoint of Electric and Magnetic Properties.** Undergraduate and graduate; credit three hours. T W Th, 9. *Room 177.* Professor DEBYE.

The role of electric moments in dielectric polarization and anomalous dispersion at radio frequencies. The magnetic properties of crystals in the neighborhood of the absolute zero and related topics.

## MATHEMATICS

Each member of the staff will have a daily office hour for consultation with students. It is urged that this opportunity be utilized by all concerned.

In the following list, courses S 2 to S 5b are equivalent to courses having the same numbers in the Announcement of the College of Arts and Sciences for 1939-40.

Courses S 2, S 3 are equivalent to the advanced entrance requirements of Cornell University and of the College Entrance Examination Board; they presuppose a ready knowledge of elementary and intermediate algebra and of plane geometry. They are also suitable for teachers in the secondary schools who wish to review the subjects.

Students taking S 5a or S 5b are requested to take no other University work during the session without special permission from the Department of Mathematics.

S 2. **College Algebra.** Undergraduate; credit three hours. Daily, 10. *White* 9. Assistant Professor RANDOLPH. (Office hour, 11, *White* 12.)

S 3. **Trigonometry.** Undergraduate; credit three hours. Daily, 11. *White* 10. Professor CARVER. (Office hour, 10, *White* 12.)

S 5a. **Analytic Geometry and Calculus.** (First term's work.) Undergraduate; credit five hours. Daily, 8 and 11. *White* 9. Dr. GIVENS. (Office hour, 9, *White* 11.)

S 5b. **Analytic Geometry and Calculus.** (Second term's work.) Undergraduate; credit five hours. Daily, 8 and 11. *White* 1. Assistant Professor LAWRENCE. (Office hour, 9, *White* 3.) *White* 6. Dr. FICKEN. (Office hour, 10, *White* 11.)

S 20. **Teachers' Course.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *White* 10. Professors CARVER and Assistant Professor HULSE. (Office hour, Professor CARVER, 10, *White* 12; Professor HULSE, GS 251.)

The course will treat certain selected topics in the algebra and geometry of the secondary school curriculum; such as the number system, the meanings and existence of solutions of equations and sets of equations, geometry as a logical system, and constructions with ruler and compasses. A part of the time will be devoted to a critical study of the content and organization of secondary school mathematics courses and programs.

S 24. **Theory of Equations.** Undergraduate and graduate; credit three hours. Daily, 11. *White* 2. Assistant Professor JONES. (Office hour, 9, *White* 4.)

Solutions of the cubic and quartic; constructions with ruler and compasses; symmetric functions; determinants and eliminants.

S 42. **Advanced Calculus.** Undergraduate and graduate; credit three hours. Daily, 12. *White* 10. Assistant Professor RANDOLPH. (Office hour, 11, *White* 12.)

A study of the processes of the calculus; definitions and properties of limits, continuity, derivatives, and integrals.

S 45. **Functions of a Complex Variable.** Undergraduate and graduate; credit three hours. Daily, 9. *White* 6. Professor AGNEW. (Office hour, 10, *White* 8.)

An elementary course on complex numbers and single-valued analytic functions of them.

S 59. **Synthetic Euclidean Geometry.** Undergraduate and graduate; credit three hours. Daily, 10. *White* 2. Assistant Professor JONES. (Office hour, 9, *White* 4.)

This course is intended primarily for teachers in secondary schools. Its aim will be to provide training in the use of the methods of proof of the usual high school plane geometry and to give useful background for the teaching of this subject. To this end there will be developed a body of theorems beyond the scope of but based upon the usual high school course. Stress will be laid on "originals."

S 61. **Projective Geometry.** Undergraduate and graduate; credit three hours. Daily, 10. *White* 25. Assistant Professor WALKER. (Office hour, 11, *White* 26B.)

The principles underlying projective forms of the first and second degrees will be discussed. Although no knowledge of mathematics beyond plane geometry will be presupposed, additional training is highly desirable.

#### READING AND RESEARCH COURSES

In addition to the preceding courses opportunities are offered to graduate students to participate in informal work by reading and research under the direction of members of the Department of Mathematics. A regularly registered

student may, by arrangement, obtain academic credit for any of this work; and credit will depend on the amount of work done. Students interested in such directed reading or research may consult any member of the staff.

- S 100a. Topics in Algebra.
- S 100b. Topics in Analysis.
- S 100c. Topics in Geometry.
- S 100d. Topics in Applied Mathematics.

### PHYSICS

**S 3. Introductory Experimental Physics: Mechanics, heat and sound.** Of the three parts described below, the student may elect (a), (a,b), or (a,b,c) without consultation; for any other combination he must have the approval of the instructor.

Parts (a,b) together constitute the complete work of Physics 3 of the regular school year. If all three parts are taken, the student should register for course S 11.

(a) Undergraduate; credit two hours. Demonstration lectures and recitations. Daily except Sat., 11. One hour written quiz a week to be arranged. *Rockefeller A. Professor HOWE.*

(b) Undergraduate; credit one hour. Fourteen experiments, each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller 252. Dr. TOMBOULIAN. Laboratory fee, \$5.*

(c) Undergraduate; credit one hour. Problem work. Sat., 8:30-11. *Rockefeller 252. Dr. TOMBOULIAN.*

**S 4. Introductory Experimental Physics: Electricity and light.** Of the three parts described below, the student may elect (a), (a,b), or (a,b,c) without consultation; for any other combination he must have the approval of the instructor.

Parts (a,b) together constitute the complete work of Physics 4 of the regular school year. If all three parts are taken the student should register for course S 12.

(a) Undergraduate; credit two hours. Demonstration lectures and recitations. Daily except Sat., 9. One hour written quiz a week to be arranged. *Rockefeller B. Professor COLLINS.*

(b) Undergraduate; credit one hour. Fourteen experiments, each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller 252. Dr. TOMBOULIAN. Laboratory fee, \$5.*

(c) Undergraduate; credit one hour. Problem work. Sat., 8:30-11. *Rockefeller 252. Assistant Professor BACHER.*

**S 11. Introductory Experimental Physics.** Undergraduate; credit four hours. Parts (a), (b), and (c) of S 3, which constitute the complete work of Physics 11 of the regular school year.

**S 12. Introductory Experimental Physics.** Undergraduate; credit four hours. Parts (a), (b), and (c) of S 4, which constitute the complete work of Physics 12 of the regular school year.

**S 60. Intermediate Laboratory Physics.** Undergraduate and graduate; credit one to three hours. Prerequisites, an introductory course in college physics and Mathematics S 3 or the equivalent. The laboratory will be open daily except Sat., from 1:40-4. *Rockefeller 352. Dr. CADY and Assistant Professor PARRATT. Laboratory fee, \$5 for each laboratory credit hour.*

Experiments in mechanics, properties of matter, heat, sound, light and electricity may be performed. The experiments will be chosen to meet the needs and previous experience of the individual student. Suitable to accompany Courses S 61 and S 62.

[S 61. **General Physics.** Undergraduate and graduate; credit two hours. Prerequisites, same as for S 62. Classroom work covering electricity and light. Not given in 1940. Planned for 1941.]

**S 62. General Physics.** Undergraduate and graduate; credit two hours. Prerequisites, an introductory course in college physics and Mathematics S 3, or the equivalents. Daily except Sat., 8. *Rockefeller 106. Dr. TOMBOULIAN.*

Classroom work covering properties of matter, sound, and heat. The course is designed to meet the needs of students who desire a study of the topics mentioned

above treated in a manner more detailed than in the beginning courses in college physics.

**S 81. Recent Developments in Physics.** Undergraduate and graduate; credit two hours. Prerequisite, a second year course in college physics or simultaneous registration in such a course. Daily except Sat., 9. *Rockefeller* 106. Assistant Professor BACHER.

An introductory survey of advances in physics since 1895; including such topics as photoelectricity, thermionics, quantum theory, atomic spectra, x-rays, radioactivity, isotopes, cosmic rays, and nuclear physics.

**S 106. Advanced Laboratory Physics.** Undergraduate and graduate; credit one to three hours. Prerequisites, Physics S 60, S 61, S 62, and Mathematics S 5, or their equivalents. Assistant Professor PARRATT and Dr. CADY. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 301. Laboratory fee, \$5 for each laboratory credit hour.

The experiments will be chosen to meet the needs and previous experience of the individual student. Apparatus and equipment are available for work in a wide variety of fields, such as: optics, spectroscopy, x-rays, electrical measurements, electronics, and high temperature measurements. The experiments may be brief so that a wide range of topics will be covered, or a longer time may be spent on each of a relatively few experiments.

[S 115. **Molecular Physics.** Undergraduate and graduate; credit two hours. Prerequisites, Physics S 62 and Mathematics S 5, or their equivalents. Not given in 1940. Planned for 1941.]

[S 125. **Electric and Magnetic Fields.** Undergraduate and graduate; credit three hours. Prerequisites, same as for S 126. Not given in 1940. Planned for 1941.]

**S 126. Electrical Conduction and Related Phenomena.** Undergraduate and graduate; credit two hours. Prerequisites, Physics S 60, S 61, and Mathematics S 5, or their equivalents. Daily except Sat., 11. *Rockefeller* 109. Professor COLLINS.

Electrical conduction in metals, electrolytes, gases and by emission in high vacua, motion of charged particles in electric and magnetic fields. Chemical and thermal electromotive forces, contact potential and work function.

**S 136. Optics and Spectroscopy.** Undergraduate and graduate; credit three hours. Prerequisites, Physics S 60, S 61, and Mathematics S 5, or their equivalents.

Class work covering the laws of reflection and refraction and their applications to optical instruments, dispersion, interference, diffraction, polarization, and the fundamental laws of spectra. Laboratory exercises which may consist of either (a) the analysis of spectroscopic data or (b) experimental work.

Class work daily except Sat., 10. *Rockefeller* 107. Dr. CADY.

Laboratory (a) Sat., 8-10:30. *Rockefeller* 121. Dr. CADY.

Laboratory (b) any day except Sat., 1:40-4. *Rockefeller* 352. Dr. CADY.

**S 305. Physical Phenomena from the Point of View of the Wave Theory of Matter.** Graduate; credit two hours. Prerequisite, S 125 or its equivalent. Daily except Sat., 8. *Rockefeller* 154. Professor SMITH.

The fundamental concepts of the wave theory of matter will be presented and used to correctly describe physical phenomena involving the interaction of electrons with atoms as exhibited in various types of collision processes. Their bearing on electrical discharges, electrical conductivity, secondary emission, etc. will be discussed. The inadequacy of classical theory to account for certain aspects of such phenomena will be pointed out.

**S 315. Special Topics for Investigation.** Graduate; credit varies with the nature and amount of work done. Students who are prepared to profit by the use of the library and laboratory facilities of the Department in the study of some special topic or in investigation will be given an opportunity to do so. This work may be taken in connection with or independently of any of the above courses and will be under the direction of one or more members of the staff, with whom frequent conferences should be arranged. Students interested are advised to correspond with Professor COLLINS.

**S 341. Theoretical and Experimental Electronics.** Graduate; credit three



hours. Prerequisite, S 126 or its equivalent. Lectures daily except Sat., 10. *Rockefeller Hall 154*. Fifteen periods in electronics laboratory. Professor SMITH and Assistant Professor PARRATT.

The lectures and laboratory will cover theory and measurements in connection with such topics as, nature of a gas, high vacuum technique, motion of charged particles in simple fields, electron optics, thermionic and secondary emission, photoelectric effect, collisions of electrons with atoms and electrical discharges. Applications of these phenomena to modern electronic devices such as the cathode ray tube, electron microscope, kinescope, iconoscope, etc. will be pointed out.

Students may take additional or more advanced laboratory work if they desire.

## ENGINEERING

The courses in engineering described below are equal in character to corresponding courses given in the COLLEGE OF ENGINEERING during the regular session. They will be accepted for credit towards graduation by the several schools of the college so far as they apply to the prescribed work of the school concerned. Students in the College of Engineering who may desire to offer work done in the Summer Session toward graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Others may obtain information concerning these courses by applying to the Secretary of the College of Engineering.

### ADMINISTRATIVE ENGINEERING

**S 3A23. Business and Industrial Management.** Undergraduate and graduate; credit two or three hours. Daily except Sat., 12. One afternoon to be arranged for those desiring three hours credit. *West Sibley 2*. Professor BANGS, Assistant Professor HANSELMAN and Mr. WHITE.

A survey of the problems of business and industrial management designed for administrative engineering students, although of considerable importance and open to any one interested in the problems of modern business. This rapidly growing field is concerned with business policies, types of business ownership, and includes the major functions of marketing, production, finance, and accounting. Major consideration is also given to the selection of personnel and to study of modern advertising.

One of the features of the course is the designing of an advertising portfolio and a critical study of the relationship of advertising to the modern organization.

**S 3A31. First Course in Accounting.** Undergraduate; credit three hours. Daily except Sat., 11. Two practice periods per week to be arranged. *West Sibley 2*. Professor BANGS, Assistant Professor HANSELMAN and Mr. WHITE.

Theory of debit and credit; the journal and ledger; the preparation of balance sheets and income statements; special journals; balance sheet analysis; financial mathematics—the use of compound interest tables; bond valuation; sinking funds.

### ELECTRICAL ENGINEERING

**S 405a. Fundamentals of Electrical Engineering.** Undergraduate; credit three or four hours. Lectures, daily except Sat., 9; computations, M W F, 10–1. Prerequisites, Physics 11 and 12, and Mechanics 3M21, or the equivalent. *Franklin 115*. Assistant Professor STRONG.

D.C. electric and magnetic circuits; d.c. motors, generators and control equipment; distribution and rates; simple a.c. circuits.

Equivalent to the recitation work in E.E. 405. Students who have satisfactorily completed only the laboratory work of E.E. 405 may register for four hours credit and receive credit equivalent to E.E. 405 upon completion of S 405a.

**S 406a. Fundamentals of Electrical Engineering.** Undergraduate; credit three or four hours. Lectures, daily except Sat., 8; computations, M W F, 10–1. Prerequisites, E.E. 405 or the equivalent. *Franklin 115*. Assistant Professor STRONG.

A.C. circuits, measurements, and machinery; industrial applications; electronic apparatus. A study of fundamental electrical principles and machinery and the application of electrical equipment in industry.

Students who have satisfactorily completed only the laboratory work of E.E. 406 may register for four hours credit and receive credit equivalent to E.E. 406 upon completion of S 406a.

S 415, 416. **Principles of Electrical Engineering.** Undergraduate; credit three hours. Students deficient in E.E. 415 or E.E. 416 should consult the professor in charge of the course, as arrangements may be made to take parts of S 405a and S 406a which constitute the equivalent of E.E. 415 or E.E. 416.

S 435. **Electrical Laboratory.** Undergraduate; credit two hours. Laboratory periods, M W F, 1:40-4. Prerequisite courses, Mechanics 3M21, and E.E. 415, 416 or the equivalent. *Rand Hall.* Mr. WOOD.

A short course in electrical laboratory. Laboratory technique and instrumentation. Tests on rotating machinery, transformers, and other apparatus. Equivalent to E.E. 435.

S 436. **Electrical Laboratory.** Undergraduate; credit two hours. Laboratory periods, M W F, 1:40-4. Prerequisite course, E.E. 435. *Rand Hall.* Mr. WOOD.

A continuation of S 435. Equivalent to E.E. 436.

S 487. **Recent Advances in Electrical Technology.** Undergraduate and graduate; credit two hours. Lectures, daily except Sat., 11. *Franklin* 115. Professors LEWIS and BALLARD, Assistant Professor STRONG.

A series of lectures covering recent advances in electrical technology in the fields of electric power, communication and illumination.

### ENGINEERING DRAWING

S 120. **Drawing and Descriptive Geometry.** Undergraduate; credit three hours. Recitations, M W F, 12. Drawing, M W, 1:40-4, and three other periods as arranged. *East Sibley.* Assistant Professor CLEARY.

Equivalent to M.E. and E.E. 120.

Coordinated instruction in subjects prerequisite to a study of the engineering applications of drawing. The fundamental drafting arts. Geometric analysis and composition of structures including considerations of: the elements of structure and their properties, interspace relations of structural elements and determinants of elements. Graphic computation and description of the geometric qualities and quantities of structure.

S 121. **Mechanical Drafting.** Undergraduate; credit three hours. Prerequisite, 120 or 125a. Recitations, M W F, 10. Drawing, T Th, 1:40-4 and three other periods as arranged. *East Sibley.* Assistant Professor CLEARY.

Equivalent to M.E. and E.E. 121.

Basic studies of the functional and structural divisions of machines, structural standards and shop methods of producing structural qualities and quantities are coordinated in this course with instruction and drill in the fundamental techniques of determining machine structure by layouts and specifying structural information on working drawings in a manner consistent with both the convenience of the shop and the need of restricting the accumulation of production errors. Freehand sketching, pictorial drawing, tracing, etc. are studied and applied in this work.

S 125. **Drawing.** Undergraduate; credit three hours. Recitations T Th S, 10. Drawing, W, 1:40-4 and four other periods as arranged. *East Sibley.* Assistant Professor Cleary.

Equivalent to Chem. Eng. Sophomore Course 125. A brief course in the basic subjects of drawing and the techniques of applying these subjects to the determination of structure by layouts and the specification of structure on working drawings.

S 125b. **Drawing.** Undergraduate; credit two hours. Prerequisite, 125a. Recitations, M W F, 10. Drawing, T Th, 1:40-4 and one other period as arranged. *East Sibley.* Assistant Professor CLEARY.

Equivalent to Chem. Eng. 125b. Planning and execution of layouts and working drawings.

### EXPERIMENTAL MECHANICAL ENGINEERING

S 3X21. **Materials of Engineering.** Undergraduate and graduate; credit three hours. Lectures daily except Sat., 12; and W, 1:40-4. *East Sibley* 110. Prerequisite,

General Chemistry 102, or the equivalent. Professor DAVIS and Assistant Professor JEFFREY.

An elementary lecture course in metallurgy, covering the process metallurgy of iron and steel, including iron ore and pig iron; the production of wrought iron, steel, and cast irons, and mechanical working operations. Particular emphasis is placed on the constitution and structure of metals and alloys, including the development and use of cooling curves and equilibrium diagrams; stressing the relationship between the nature, form, size and distribution of constituents to the mechanical and physical properties of materials. Heat treatment operations are studied with reference to their effects on the constitution and the mechanical properties of alloys. An introduction is given to methods of testing for the determination of the properties of materials.

**S 3X31, S 3X33. Materials Testing and Physical Metallurgy.** Undergraduate and graduate; credit four hours. Prerequisites, Engineering Materials 3X21, Theoretical and Applied Mechanics 3M21, Strength of Materials 3M22a, or the equivalent. Courses S 3X21 and S 3X31 may be taken concurrently. Two lectures and two laboratory periods a week as assigned, M and Th, 10-12, and daily 1:40-4. *Mechanical laboratory.* Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

A laboratory course dealing with: the determination of physical properties of materials (principally metals and alloys) by means of various physical tests; a study of the behavior of materials in different kinds of loading; the selection of materials for a given use based upon the physical properties; the control of physical properties of ferrous and non-ferrous alloys by various forms of thermal and mechanical treatments, with emphasis on the relationship between the phase changes, the microstructure and physical properties. A written report is required on each experiment.

**S 3X31, S 3X33. Materials Testing and Physical Metallurgy.** Undergraduate; credit four hours. Admission only with the permission of the instructor. Prerequisites, 9 hours of college mathematics, including trigonometry, and 12 hours of science, including physics and chemistry, except that a deficiency of not more than three hours may be taken concurrently with Course S 3X101. Lectures M and Th, 8-10 and two laboratory periods a week as assigned on T and F, 8-10, or 10-12. *Mechanical Laboratory.* Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

It is the primary purpose of this course to meet the needs of teachers of Industrial Arts and of Technical and Vocational Education. The course includes: the testing of materials, principally metals and alloys; the use of testing machines and other instruments for the determination of the physical properties of materials; a study of the internal structure of materials by microscopic examination; the control of properties by various mechanical and thermal processes; the industrial fabrication and processing of materials; the selection of materials with particular reference to their use in industry. The course work will be supplemented by visits to nearby industrial plants.

## MECHANICS OF ENGINEERING

The following courses in Mechanics of Engineering are open to students from other universities, subject to the same requirements for admission as are made for Cornell students.

**S 3M22a. Strength of Materials.** Undergraduate; credit three hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. Daily, 8, Sat., 10, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. *West Sibley 310.* Professor GOODIER, Assistant Professor PERKINS and Mr. WILLIAMS.

Stress, strain; strength and elastic properties of materials in tension, compression, and shearing; riveted joints; torsion of shafts; helical springs; shear; moment, safe loading, and deflection of simple beams; eccentric loads; columns; impact loads.

**S 3M23. Hydraulics.** Undergraduate; credit two hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. Daily except Sat., 10. *West Sibley 312.* Assistant Professor PERKINS and Mr. WILLIAMS.

Hydrostatics: pressures and centers of pressure. Hydrokinetics: general equations of energies; orifices, weirs, nozzles, Venturi meters, etc.; losses of head; flow in pipe. Hydro-dynamics: forces on stationary and moving bodies.

S 3M24. **Applied Mathematics.** Undergraduate; credit three hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, and Strength of Materials, 3M22a, or equivalent, but may be taken concurrently with S 3M22a. Daily, 9, Sat., 11, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. *West Sibley* 312. Professor GOODIER.

Curve plotting, choice of coordinates and scale, straight line plotting of simple equations; logarithmic plotting; fitting empirical equations to experimental data; first and second order differential equations; vibration problems in engineering; linear, torsional, and flexural vibrations without and with damping; forced vibrations; critical speeds; problems with two degrees of freedom.

### STRUCTURAL ENGINEERING

S 221. **Mechanics of Engineering.** Undergraduate; credit four hours. Daily except Sat., 8 and 11. *Lincoln* 24. Assistant Professor HOWELL.

Mechanics of materials including stress and strain, tension, shear, compression, torsion, flexure; elastic curves; safe loads; columns; flexure of beams by semi-graphic treatment. Review problems showing application of principles in Engineering Design. Textbook: George and Rettger, *Mechanics of Materials* (Third Impression).

S 221A. **Mechanics Laboratory.** Undergraduate; credit one hour. Fifteen periods, at hours to be arranged. *Mechanics Laboratory, Lincoln.* Assistant Professor HOWELL.

Concurrent with S 221. Experiments designed to illustrate the principles of Mechanics studied in S 221.

S 223. **Engineering Problems.** Undergraduate; credit two hours. Thirty periods, at hours to be arranged. Assistant Professor HOWELL.

Problems in Mechanics and Hydraulics, such as occur in ordinary engineering practice, and covering a wide range of topics, are given out for solution.

S 270. **Structural Analysis and Design.** Undergraduate; credit four hours. Prerequisite, C.E. 220, 221. Lectures and recitations, daily except Sat., 8; computations and drawings at hours to be assigned. *Lincoln* 14 and 29. Assistant Professor BURROWS.

One-fourth of the course includes structural details, i.e., the design of a wooden roof truss and other timber joints. The remainder of the course includes dead load, live load, and impact stresses in simple bridge trusses due to uniform live panel loads, locomotive axle loads, and highway loads. Text: Urquhart and O'Rourke, *Stresses in Simple Structures*.

S 271. **Structural Design.** Undergraduate; credit three hours. Prerequisite, C.E. 270. Lectures, computations, and drawing. Daily, 9-11. *Lincoln* 14. Assistant Professor BURROWS.

An elementary course in steel design. Complete design, detail drawing, bill of material, and estimate of weight of a steel roof truss, a thorough plate girder railroad bridge. Floor systems of highway bridges. Text: Urquhart and O'Rourke, *Design of Steel Structures*.

S 274. **Bridge Design.** Undergraduate and graduate; credit three hours. Prerequisite, C.E. 271. Computation and drawing, daily, 11-12:50. *Lincoln* 14. Assistant Professor BURROWS.

Computations and drawing for the complete design of a riveted railroad or highway bridge. The computations to determine the sections of all members, joints, splices, and other details are to be written up in systematically arranged reports. The drawing consists of general plans showing the location of all rivets as well as the composition and relation of all members and connections. The final reports are to give a full list of shapes and plates, and a classified analysis of weight for the span.

S 280. **Concrete Construction.** Undergraduate; credit three hours. Prerequisite, C.E. 220, 221. Daily, 9-10:30. *Lincoln* 21. Professor URQUHART.

Concrete materials, properties of plain concrete, its making and deposition; elementary theory of reinforced concrete as applied to columns, rectangular beams, and slabs; T-beams reinforced for compression; direct stress combined with flexure; retaining walls. Text: Urquhart and O'Rourke, *Design of Concrete Structures*.

S 281. **Foundations.** Undergraduate and graduate; credit three hours. Daily, 8. *Lincoln* 21. Professor URQUHART. Prerequisite, a fundamental course in Mechanics.

Piles and pile driving, including timber, concrete, tubular and sheet piles; cofferdams; box and open caissons; pneumatic caissons for bridges and buildings, caisson sinking, and physiological effects of compressed air; pier foundations in open wells; freezing process; hydraulic caissons; ordinary bridge piers; cylinders and pivot-piers; bridge abutments; spread footings for building foundations; underpinning buildings; subterranean explorations; unit loads. Textbook: Jacoby and Davis' *Foundations of Bridges and Buildings*. Recitations, collateral reading in engineering periodicals, and illustrated reports.

S 285. **Reinforced Concrete Design.** Undergraduate and graduate; credit three hours. Prerequisite, C.E. 280. Daily except Sat., 11-12:30. *Lincoln* 21. Professor URQUHART.

Design of multiple column footings of reinforced concrete. I-beam grillages. Design of bins and tanks: subsurface and supported on towers. Shortspan bridges. Reports and sketches.

## AGRICULTURE

In addition to the following technical courses, the NEW YORK STATE COLLEGE OF AGRICULTURE also offers courses in Rural Sociology, Rural Education, Meteorology, and the various Biological Sciences. For these courses, see the appropriate division, or consult the Index at the end of this Announcement.

### AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A 135. **Local Government.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 10. *Warren* 125. Laboratory, M, 1:40-4. *Warren* 101. Discussion period to be arranged. Professor CATHERWOOD.

Organization, administration, and financing of local government, with major emphasis on counties, towns and school districts in New York. Fee for materials, \$2.

A 143. **Marketing Dairy Products.** Undergraduate and graduate; credit three hours. Lectures daily except Sat., 9. *Warren* 225. Laboratory, Th, 1:40-4. *Warren* 240. Professor SPENCER.

A study of the marketing of fluid milk and other dairy products with attention to certain principles that apply in the marketing of farm products generally. Fee for materials, \$2.

A 202. **Farm Management.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 11. *Warren* 101. Laboratory, T, 1:40-4, Sat., 8-12:30. *Warren* 101. Field trips will be taken to farms in nearby regions during some of the laboratory periods. Assistant Professor WARREN.

A special course intended primarily for high school teachers, county agricultural agents and others who have had previous training in farm management and now wish a review of the field, together with instruction in selection and preparation of farm management and agricultural economic material for teaching purposes. Emphasis will be placed on farming as a business, factors affecting farm incomes, use of capital and credit, the organization and management of specific farm businesses, and the keeping and interpretation of farm records and accounts. Fee for materials, \$2; for transportation, \$4.

A 281. **Land Economics.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 8. *Warren* 225. Laboratory, W, 1:40-4. *Warren* 240. Field trips will be taken to nearby areas during some of the laboratory periods. Professor HILL.

The characteristics of land and their relation to population and public policies; the theory, methods, results, and use of land classification studies. Fee for materials furnished, \$2.

### AGRICULTURAL ENGINEERING

**A 40c. Advanced General Farm Shop.** Undergraduate and graduate; credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. Daily except Sat., 10-12. *Agricultural Engineering Laboratory.* Assistant Professor WRIGHT.

These courses are designed primarily for teachers of agriculture who are giving the work as part of the shop courses in high schools or who are conducting extension work. The preparation of job sheets will be a part of the instruction.

**Unit 1. July 9-20. Plumbing and its Application to the Home and Farm.**

A study of: (1) plumbing systems: (2) plumbing materials, including fixtures, pipe, fittings, etc.; (3) various types of domestic water systems. Practice to give skill in plumbing operations. Laboratory fee, \$1.

**Unit 2. July 22-August 3. Automobiles and their Engines.**

A study of: (1) the principles of operation, care, and repair of automobile engines; (2) the general structure and principles of operation of the various automobile units, including modern features; (3) the servicing of cars, such as lubrication, battery care, tires, etc. Laboratory fee, \$1.

**Unit 3. August 5-16. Household Mechanics.**

A study of and practice in methods of servicing and repairing various types of household equipment such as pumps, water-systems, faucets, valves, heating plant, electrical devices, refrigerators, washing machines, sewing machines, cutting tools, etc. Laboratory fee, \$1.

**A 41. General Shop Work for Rural High-School Teachers.** Undergraduate; credit three hours. T Th, 1:40-4:45 and Sat., 8-12. *Agricultural Engineering Laboratory.* Professor ROEHL.

Practical jobs to develop skill in woodworking, saw filing, tool grinding, handle fitting, harness repairing, rope work, cold metal working, farm blacksmithing, painting and glazing, furniture repairing, and refinishing, as suited to the needs of rural communities.

A course for teachers of agriculture and general shop work in rural high schools. Designed to develop skill in performance. Laboratory fee, \$3.

**A 43. Field Machinery Repair.** Undergraduate and graduate; credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. M W F, 1:40-4:45. *Agricultural Engineering Laboratory.* Professors ROEHL and JENNINGS.

This course is intended to prepare men to teach the repairing of farm machinery as part of the shop work in Vocational Agriculture.

**Unit 1. July 9-20.** A study of the care, repair, and operation of plows, cultivators, and other tillage machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

**Unit 2. July 22-August 3.** A study of the care, repair, and operation of mowers, binders, and other harvesting machinery with the emphasis on practical care and maintenance. Laboratory fee, \$1.

**Unit 3. August 5-16.** A study of the care, repair, and operation of planters, drills, and other seeding machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

**A 44a. Industrial Arts General Shop.** Undergraduate and graduate; credit four hours; two hours by special permission. Registration limited to twenty-five. Daily except Sat., 1-5. *Junior High School Laboratories 102 and 110.* Mr. BECKER.

A general course for teachers of agriculture who desire to qualify for the part-time teaching of industrial arts in the secondary school. The New York State Course of Study for Industrial Arts I (Comprehensive General Shop) will be used as a basis. Each student participates in the regular work, organization, and administration of the shop work. Wood, art metal, machine, ornamental iron, electricity, soft metal casting, etc., will constitute the course. Laboratory fee, \$4 and \$2.

**A 44b. Industrial Arts Wood Shop.** Undergraduate and graduate; credit two hours. Registration limited to twenty-five. Daily except Sat., 8-10. *Junior High School Laboratory 102. Mr. RODEN.*

A limited general shop course which compares favorably with New York State Course of Study for Industrial Arts II (General Wood Shop). Job participation will be divided into the grades represented by the Course of Study and each student will participate in all activities represented by that grade level. Related information, shop organization, and administration will form the basis of discussion and participation. Laboratory fee, \$2.

**A 44d. Industrial Arts Electrical Shop.** Undergraduate and graduate; credit two hours. Registration limited to twenty-five. Daily except Sat., 10-12. *Junior High School Laboratory 102. Mr. RODEN.*

A limited general shop course which compares favorably with New York State Course of Study for Industrial Arts IV (General Electrical Shop). Organized somewhat similarly to A 44b. Here electrical fundamentals and related work discussion is based largely upon job and project construction, similar to its teaching in Industrial Arts courses. Related information, shop organization and information will form the basis of discussion and participation. Laboratory fee, \$2.

**A 49. Welding.** Undergraduate and graduate; credit one hour. Prerequisite, permission to register. Practice by appointment. *Agricultural Engineering Laboratory. Professor JENNINGS and Mr. CLOUGH.*

Training in oxy-acetylene welding and electric welding with both alternating and direct current machines. Laboratory fee, \$5.

**A 101a. Electricity and Its Application to the Home and Farm.** Undergraduate and graduate; credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit, provided the first unit precedes the second and the first two precede the third. M W F, 1:40-4:45, and one extra hour each week. *Agricultural Engineering Laboratory. Assistant Professor WRIGHT.*

Unit 1. July 9-20. A study of elementary electricity, dry cell and storage batteries, elementary wiring, lighting and power circuits, switching circuits, burglar alarms, wiring materials, wiring code rules. Laboratory fee, \$1.

Unit 2. July 22-August 3. A study of house wiring, including the actual wiring of a small building, heating appliances, motor appliances, illumination and illuminating equipment including portable lamps, and power distribution systems. Laboratory fee, \$2.

Unit 3. August 5-16. Electric motors and generators. A study of types of motors and generators commonly used on the farm and in the home together with their various applications. Opportunity will be given to build small motors and generators as a means of learning the principles of operation. Considerable time will be given to such matters as the selection, installation, and servicing of these machines. Laboratory fee, \$1.

**A 240. The School Shop: its Organization, Management and Teaching Problems.** Undergraduate and graduate; credit three or four hours. Must be preceded by adequate training in shop. For teachers of agriculture and other rural teachers who give shop primarily as a service subject. Daily except Sat., 8, and M W F, 9. *Agricultural Engineering Laboratory. Professor ROEHL and Assistant Professor OLNEY.*

Advanced problems in objectives, curriculum organization and procedures in shop instruction: individual plans for integration into the school program will be required. Plans, tools, supplies, commercial and home made equipment; shop management.

**A 251. Special Problems in Agricultural Engineering.** Undergraduate and graduate; credit one or more hours. Prerequisite, adequate ability and training for the work proposed, and permission to register. Professors and assistant professors of the department.

Special work in any branch of agricultural engineering on problems under investigation by the department and of special interest to the student; provided, in the latter case, that adequate facilities can be obtained. Laboratory fee as arranged.

## FLORICULTURE AND ORNAMENTAL HORTICULTURE

A 3. **Amateur Floriculture.** Undergraduate; credit one hour. Lectures, W Th, 11. *Plant Science* 37. Laboratory, F, 1:40-4:30. *Plant Science* 15. Miss SMITH.

An elementary course, designed especially for those who do not wish to major in floriculture but who wish a practical knowledge of the culture and use of plants indoors and in the amateur garden. Laboratory fee, \$1.

A 4. **Planning and Planting the Home Grounds.** Undergraduate; credit two hours. Lectures, T W Th, 12; *Plant Science* 37. Laboratories, W Th, 9-12, and one additional period; *Plant Science* 433. Acting Professor PORTER.

A brief course covering the fundamental principles of landscape planning and planting as related to our smaller residence properties. Not a technical course; open for general election. Students will need a set of drawing instruments. Registration limited to sixteen. Members of the class participate in an excursion on August 2 and 3 to visit private estates and public parks in Rochester. The transportation charge will be \$4. Laboratory fee, \$3.

A 5. **Flower Arrangement.** Undergraduate; credit one hour. Lecture, M, 12. Practice, M T, 1:40-4:30. *Plant Science* 22. Miss SMITH.

A study of the principles and methods of arranging flowers and plants for decorative use in the home and for public functions. Registration limited to twenty. Laboratory fee, \$5.

A 75. **Herbaceous Plant Materials.** Undergraduate and graduate; credit two hours. Lectures, M T W Th, 8. *Plant Science* 37. Laboratory, W Th, 1:40-4:30. *Plant Science* 15, and *Gardens*. Dr. ALLEN.

A study of the ornamental herbaceous plants used in landscape and garden plantings. Emphasis is placed on the identification, uses, and culture of annuals and summer flowering perennials. Problems in garden maintenance are considered. All members of the class must participate in an excursion on August 2 and 3 to visit private estates and public parks in Rochester. Laboratory fee, \$3; transportation fee, \$4.

A 80. **Woody Plant Materials for Landscape Planting.** Undergraduate and graduate; credit four hours. Lectures, M T W Th, 9. Laboratory and field trip, M T, 10-12:30, 1:40-4:30. *Plant Science* 37 and *Campus*. Professor CURTIS.

A study of the characteristics and requirements of trees, shrubs, and vines for landscape planting. The laboratories and field trips enable the student to recognize common woody plants. The lectures discuss plant materials, in order that the student may learn to see plants not only as growing things but as possible units in designs with which he may be able to improve his surroundings. All members of the class must participate in an excursion on August 2 and 3 to visit private estates and public parks in Rochester. The transportation charge will be \$4. Laboratory fee, \$3.

A 109. **Summer Propagation.** Undergraduate and graduate; credit two hours. Lectures, W Th, 8. *Plant Science* 29. Laboratories, M W, 1:40-4:30. *Greenhouses and Nurseries*. Assistant Professor HUNN.

Intended for students who have had the beginning course in propagation. Advantage is taken of the summer months to amplify courses in propagation by intensive practice in the summer production of soft wood cuttings and the budding of nursery stocks. This will include the management of hot beds and the lining-out system followed in the production of stock plants. Two extra hours a week are required for care of hot beds. Two one day trips are planned for visits to producing nurseries on July 11 and August 1. Laboratory fee, \$3.

Courses A 118, A 162, and A 171 are offered to practicing nurserymen, park and estate superintendents, landscape engineers and architects, and to advanced students in horticulture and landscape gardening.

Courses A 118 and A 171 taken together constitute a full summer program. Either course may be taken separately or may be combined with other courses offered by the College or Department.

Application for admission to these courses should be made as early as possible as registration is limited.



A 118. **Landscape Construction.** Undergraduate and graduate; credit four hours. Prerequisite permission to register. Lectures, T, 7-9:30 p.m. *Plant Science* 433. Laboratories, W Th, 1:40-6 p.m.; F, 8-12, 1-6; S, 8-1. *Practice fields.* Acting Professor PORTER.

A course covering the construction problems of the service departments of nursery landscape firms, landscape contractors, greenkeepers, and park superintendents. Studies, estimates, and the practice of grading, earthwork, walls, terraces, steps, pools, and the like. Several trips to visit work under construction will be required. Laboratory fee, \$8.

A 162. **Special Problems.** Undergraduate and graduate; credit and hours by arrangement. Professors CURTIS and PORTER and Assistant Professor HUNN.

Special problems in plant materials, nursery, and landscape work may be elected by qualified students with the permission of the instructors. Laboratory fee dependent upon the nature of the problem.

A 171. **Tree and Shrub Management.** Undergraduate and graduate; credit three hours. Prerequisite, permission to register. Lectures, M T, 8. *Plant Science* 29; W Th, 10, *Plant Science* 37; laboratories, M, 9-12:50, T, 10-12:50 and 1:40-4:30, W Th, 11-12:50. *Plant Science* 40 and *Nurseries.* Assistant Professor HUNN and others.

A study of the principles and practices employed in the transplanting and maintenance of woody plants including fertilizing, pruning, spraying, big tree moving, and a discussion of special plants for special places. Laboratory fee, \$2.50.

## HOME ECONOMICS

The Summer Session courses in the New York State College of Home Economics are planned primarily to meet the needs of teachers, extension workers, and other persons dealing with problems in homemaking who wish to broaden and strengthen their home economics background and thus to be able to meet more adequately the needs of the situations in which they work.

Since Summer Session students in the field of Home Economics constitute a mature group, largely made up of professional persons, the approach in courses is adapted to the needs of this group and even courses of an introductory nature are quite different from courses of similar title offered during the regular college year. Hence all the courses are marked "graduate." Undergraduates are occasionally admitted but only by permission of the instructor; such permission should be secured by correspondence in advance of registration day. Graduate students must notify the instructor at the beginning of Summer Session whether they wish credit toward a degree.

Courses have been renumbered for this Summer Session. Numbers in parenthesis refer to those used in previous Summer Session catalogues and will help to identify the courses with those previously offered.

All courses are given in *Martha Van Rensselaer Hall*.

## ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT

E 160. **Marketing Problems from the Consumer's Viewpoint.** Graduate; credit two or three hours, to be determined at registration. T Th, 2-5. *Room* 121. Assistant Professor HOTCHKISS.

This course is to help teachers, extension workers, and others gain an understanding of the significance of an efficient marketing system in relation to a high level of consumption for our people and in relation to satisfactory family management. The following topics will be discussed: the various services performed in moving goods from the places where they are produced to the places where they are to be used, and the cost of these services; problems in marketing such as prices and price policies, legislation and regulations, provision of information for consumers concerning characteristics of commodities and supplies available; the effects of marketing practices, policies, and problems on the welfare of families. Visits will be made to several marketing agencies. Fee, \$5, including transportation.

E 310 (E 112). **Management in Relation to Family Living.** Graduate; credit three hours. Registration by permission of the instructor. Discussions, laboratory, and field trips, M W, 2-5; F, 2. Room G-19. Assistant Professor WIESENDANGER and Mrs. SMITH.

This course is for teachers, extension workers, social workers, home service representatives, and homemakers who wish help in understanding the process of management, and opportunity for practice of this process. Emphasis will be on the use of resources to accomplish a purpose. Students will gain experience in recognizing and analyzing their own management problems. They will visit homes, schools, and community centers to see how certain families and groups of people manage differently to achieve their individual purposes. Laboratory work will consist of cooperation with families and other groups in the study of tasks. Trial work centers will be set up with portable equipment to help in determining the most satisfactory way of performing these tasks in each individual case. Students will be given opportunity to develop their own ideas and to use initiative in working out procedures and materials helpful in meeting their vocational problems in management. Fee, \$10, including transportation.

### FAMILY LIFE

E 319 (E 117s). **Family Experience and Individual Adjustment.** Graduate; credit two hours. Two sections, daily except Sat., 9 or 11. Room 124. Assistant Professor ENTORF.

This course will deal with the influence of family experience on the growth of personality and with the variety of ways in which individuals adjust to typical life situations. Fee, \$1.

E 320 (E 118). **Family Relationships and Personality Development.** Graduate; credit two hours. Limited to forty students. Lectures and discussions, daily except Sat., 9. Discussion groups of 8-10 persons meet once each week for an hour-and-a-half period. Room 121. Professor ROCKWOOD.

This course will deal with the origin and nature of the relationships of family members in our culture. These relationships will be viewed in the framework of the culture within the cycle of changing family relationships from infancy to old age. Experiences of many families will be used to illuminate the sources of conflict and the process of adjustment in the different stages of family living. Fee, \$2.50.

E 330 (E 220). **Participation in the Nursery School.** Graduate; credit two or three hours. Limited to ten students. Open to home economics teachers, and other students with qualifications satisfactory to the instructor. Prerequisites, child psychology and an elementary course in behavior. For each hour of credit, there will be required a total of thirty hours of supervised participation in the nursery school and several conferences each week with the teaching staff. Laboratory hours to be arranged. Conference, daily except Sat., 12. Room 124. Assistant Professor REEVES.

Participation in the Nursery School is designed to be an experience in group living in a controlled situation. It offers opportunity for observation and understanding of young children in their homes and in the group, and for participation in their care and guidance. It gives some experience in planning a child activity program, and in cooperating with staff and parents concerned. Laboratory fee, \$5.

E 410 (E 101). **Principles of Child Guidance.** Graduate; credit two hours. Prerequisite or parallel, psychology of childhood and adolescence. Discussions, daily except Sat., 8. Room 124. Nursery School observations, one hour daily except Sat.; hours to be arranged with the instructor during registration. Professor WARING and Assistant Professor REEVES.

The behavior of young children and the influence of adults upon their learnings will be observed and studied as a basis for developing principles of guidance. Hours of observation in the Nursery School will be arranged at different hours each day in order to include typical activities. Laboratory fee, \$5.

E 425c (E 225c). **Seminar in Family Life with Special Consideration of the Child of Pre-school and School Age in Family and Social Relationships.** Grad-

uate; credit two hours. Limited to twenty students. M W F, 2-4. *Room 121.* Professor FOWLER. Fee, \$2.50.

E 43b (E 215). **Research Studies in Family Life.** Graduate; credit one or two hours. Registration by permission of the instructor. Hours by arrangement. Professor WARING and Professor ROCKWOOD.

The purpose of the course is to offer to a limited number of qualified graduate students an opportunity for research in Family Life.

Tentative list of courses to be offered in the Department of Family Life next Summer Session:

## 1941

- E 319 (E 117s). Family Experience and Individual Adjustment
- E 320 (E 118). Family and Personality Development
- E 330 (E 220). Participation in the Nursery School
- E 410 (E 101). Principles of Child Guidance.
- E 425a (E 225a). Seminar in Family Life with Special Consideration of the Adolescent in Family and Social Relationships
- E 430 (E 215). Research Studies in Family Life

## FOODS AND NUTRITION

E 200 (E 111). **Meal Planning, Preparation, and Service.** Graduate; credit two hours. Prerequisite, elementary courses in food preparation and nutrition. Limited to sixteen students. Lectures and discussions, T Th, 11. *Room 3M13.* Laboratory, M W F, 11-1:30. *Room 361.* Mrs. BOICOURT.

This course is designed primarily for teachers and extension workers. Consideration will be given to problems involved in the purchase of food, and in planning, preparation, and serving of meals. Emphasis will be placed on organization and management of time and energy. Trips will be made to nearby pottery and silver factories. Approximate cost of trips, \$2; fee, \$15.

E 260 (E 145s). **Consumer Problems in Buying Foods.** Graduate; credit two hours. Registration by permission of instructor. Discussions and laboratory, M W F, 2-4. *Rooms 343 and 352.* Assistant Professor BRUCHER.

This course is concerned with the problems encountered in buying foods. Topics of study will include: points in selecting specific food products; problems arising from the wide range in quality of foods and variation in individual purposes and needs; certain factors influencing cost, such as quality, season, waste, quantity; sources of information; government and private regulations and standards. Laboratory fee, \$5.

E 320 (E 132s). **Experimental Cookery.** Graduate; credit two hours. Prerequisite, previous courses in food preparation satisfactory to the instructor. Registration limited to eighteen students. Lectures and discussions, T Th, 11. *Room 339.* Laboratory, M W F, 10-1. *Room 358.* Assistant Professor PERSONIUS.

The purpose of this course is to increase the student's knowledge of food preparation through the solving of practical problems. Attention will be given to the study of methods and techniques used in experimental work in foods and to the judging of food products. A written report including an analysis of experimental results will be required. Fee, \$10.

E 340 (E 131). **Problems of Family Nutrition with Special Emphasis on Child Feeding.** Graduate; credit, lectures and discussions, two hours; with laboratory, three hours. Prerequisite, knowledge of general nutrition and dietetics obtained from previous college courses. Laboratory limited to twenty students. Lectures and discussions, T Th, 9-11. *Room 339.* Laboratory, T Th, 2-4:30. *Room 426.* Professor MONSCH and Mrs. WATSON.

This course will include a study of family problems in nutrition, with special emphasis upon the nutritional needs of the child; the relation of nutrition to physical growth and development; and experience in actual family situations, the Nursery School and the public schools. Fee, lecture, \$1; with laboratory, \$8.

E 350b (E 150b). **Studies in Nutrition.** Graduate; credit and hours to be arranged individually. Prerequisite, background for independent research in nutrition. Registration by permission of instructor. Primarily for students working for an advanced degree. Professor MONSCH. Fee to be determined by the problem.

E 420a (E 255a). **Seminar in Foods.** Graduate; credit two hours. Registration by permission of the instructor. M W F, 8-10. Room 301. Assistant Professor PERSONIUS.

Readings and reports on selected topics with emphasis on current literature in the field. Fee, \$1.

**Note:** See the Announcement of the School of Hotel Administration for other unit courses pertinent to the needs of persons engaged in Foods and Nutrition work or in Institution Management.

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Tentative list of courses to be offered in the Department of Foods and Nutrition next Summer Session:

#### 1941

E 250 (E 114).	Food Demonstrations	
E 310 (E 102).	The Scientific Aspect of Food Preparation (Sequence alternating with E 315)	
E 325 (E 123).	Advanced Nutrition	} One of these to be offered in 1941
E 350a (E 150a).	Studies in Foods	
E 350b (E 150b).	Studies in Nutrition	

#### HOUSEHOLD ART

E 120 (E 102). **Home Furnishing.** Graduate; credit two or three hours. Lectures, discussions, and laboratory, T Th, 2-5. For three hours credit, one additional laboratory to be arranged. Room 408. Instructor to be announced.

This course is designed to help students gain an understanding of the fundamental considerations involved in furnishing a house for the pleasure and comfort of the family. It will include an orientation to the problems and possibilities involved in choice and satisfactory use of furnishings, and the study of specific furnishing problems in actual homes. Estimated cost of trips, \$5; fee, \$3.75 per credit hour.

E 135 (E 107). **Home Projects in Room Improvement.** Graduate; credit two or three hours. Lectures, discussions, and laboratory: Section I, T Th, 2-5; Section II, M W, 2-5. For three hours credit, one additional laboratory to be arranged for each section. Room 318. Professor ROMAN, and Miss SEGOLSON.

This course is designed for teachers and others responsible for developing sound practices in simple home furnishing projects. These projects provide a natural approach and offer a valuable means of enlisting the cooperation of all the family members. Plans will be worked out for the simple furnishing of entire rooms; practice will be given in mixing paint and dye; old furniture will be remodeled and some new simple pieces will be constructed. Materials used will be those commonly found in rural and village homes. It will be helpful if those intending to take the course will write to the instructor for suggestions about materials that might be brought from home.

Students will be given help in improving their home surroundings at small cost, whether they live in a house, small apartment, or rented room. Teachers will be helped to accumulate illustrative materials for their own work. Estimated cost of materials and trips, \$7.50; fee, \$2.50 per credit hour.

E 150 (E 127). **Housing from the Standpoint of Home Economics.** Graduate; credit two or three hours. Discussions, laboratory, and field trips. Individual conferences to be arranged. T Th, 2-5. For three hours credit, one additional laboratory to be arranged. Room 327. Professor MORIN.

This course will include a survey of the factors in present-day housing with which the individual is vitally concerned as homemaker, community member, or home-economics worker; a study of problems involved in achieving adequate housing; discussion of the contribution that home economics should be making

toward the solution of these problems in cooperation with other agencies; and vocational opportunities for the home-economics graduate in the field of housing. Estimated cost of trips, \$5; fee, \$3.75 per credit hour.

E 300 (E 150). **Special Problems.** Graduate; credit and hours to be arranged individually. For students approved by the head of the department for independent, advanced work on a problem not dealt with by other courses in the department. Professor MORIN. Fee determined by the problem.

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Tentative list of courses to be offered in the Department of Household Art next Summer Session:

1941

- E 136 (E 108). Room Rearrangement
- E 138 (E 109). Consumer Problems in the Buying of Furniture
- E 140 (E 125). House Planning
- E 300 (E 150). Special Problems
- E 320 (E 104). Home Furnishing—Special home and community problems

### INSTITUTION MANAGEMENT

E 250 (E 103). **School Lunch Problems.** Graduate; credit two hours. Limited to twenty students. Lectures and discussions, T Th, 2-5. Room 124. Three observation periods in the home economics cafeteria or elsewhere and three field trips will be required in addition to the regular class meetings. Miss ROBERTS.

This course is planned for homemaking teachers who have not had courses in institution management, but who have responsibility for the school lunch. It will deal with problems of interest to the group as a whole, including organization and management procedures, selection of furnishings and equipment, and purchasing of food supplies. Fee, \$1.

Students interested in a unit course in quantity cookery may register for H 22 in the School of Hotel Administration, August 5 through August 17.

**Note:** See the Announcement of the School of Hotel Administration for other unit courses pertinent to the needs of the food administrator or institution manager.

### TEXTILES AND CLOTHING

E 205. **Fitting, Pattern Making, and Construction.** Graduate; credit three hours. Prerequisite, fundamental courses in clothing selection and construction. Laboratory, daily except Sat., 8-10. Room 217. Assistant Professor HUMPHREY.

This course will include concentrated work in fitting, based on the use of the commercial pattern. The development of the principles of fitting as related to pattern making and pattern adjustment will be discussed and demonstrated. Pattern alterations and adaptation to individual figures will be a part of laboratory work. In construction, the emphasis will be placed on techniques used in the development of professional skill and on management and organization of work. Estimated cost of materials, \$10 to \$25; fee \$5.

E 210 (E 122). **Dress Design.** Graduate; credit two hours. Lectures, discussion and laboratory, M W F, 10-1. Room 215. Assistant Professor FULLER.

This course is planned to give opportunity for creative experience through dress design and to develop appreciation of fine design in wearing apparel.

Design problems emphasize originality and discrimination in the use of texture combinations, structural detail, surface decoration and color. Ideas for designs will be drawn from modern and historic sources and used in the costume in a fashionable way; they will be carried out in cloth, paint or pencil. Instruction in sketching will be given. Estimated cost of materials, \$10 to \$15; fee, \$5.

E 320 (E 160). **Consumer Problems in Buying Clothing.** Graduate; credit two hours. Limited to twenty students. Lectures, discussions and laboratory, M W, 2-4; field trips, F, 2-5. Room 215. Assistant Professor FULLER.

This course will deal with variations in the needs and desires of different individuals as a basis for purchase and use of clothing; buying practices of con-

sumers; relationship of design, fashion and construction to quality and cost of merchandise; government and industrial regulations, standards and specifications; services by retail stores, such as testing bureaus, consultant bureaus, and training of salespeople; sources of information available to consumers.

Trips to factories and stores in Ithaca and nearby towns will be planned. Estimated cost of materials and trips, \$10; fee, \$5.

E 420. **Clothing Problems in Families.** Graduate; credit three hours. Registration by permission of instructor. Laboratory and field practice, M W F, 2-5. Room 217. Assistant Professor SCOTT.

This course is designed to help teachers who wish practical experience in meeting clothing problems as they occur in family situations. The content of the course will be determined as problems arise and needs are recognized. There will be an opportunity to visit homes to study clothing problems of a family; to adapt this experience to a teacher's situation in her community; and to increase the student's own technical information and skill in clothing selection and construction. Laboratory fee, \$5.

Tentative list of courses to be offered in the Department of Textiles and Clothing next Summer Session:

1941

- E 205. Fitting, Pattern Making and Clothing Construction
- E 212 (E 116). Craftsmanship in Designing Distinctive Details of Clothes
- E 215 (E 117). Advanced Dress Design and Pattern Making
- E 310 (E 150). Household Textiles
- E 420. Clothing Problems in Families

#### LEADERSHIP IN HOME ECONOMICS

E 320 (E 120S). **Leadership in Home Economics: Program Planning and Methods.** (Rural Education 134b: Adult Homemaking Education). Graduate; credit two or three hours, to be determined in conference with instructor during registration. Discussion, M W F, 10-12. Room 121. Miss HENDERSON.

For extension workers, home economics teachers, and others interested in leadership in homemaking education. This course offers opportunity for students to re-evaluate and reconstruct their past experience in home economics, for the purpose of developing increasingly effective programs in homemaking education for a variety of present-day homes and families. Through observing and assisting several extension specialists, agents, and lay leaders, county leaders of home economists, and other teachers of adults, when they are working near Ithaca with individual families and groups, students may (1) broaden and clarify their concept of the directions in which leadership is commonly needed among families; (2) develop some additional skill in finding significant facts about family needs and some further judgment about program and teaching procedures; and (3) evolve some principles of learning and program building. Through individual and group discussion and work, students will evaluate methods of leadership and will plan programs to meet needs of specific groups. Students will find it helpful to bring with them information about homes and families in their localities and descriptions of some adult programs there. Observation of field work will be planned for four or more days during the summer session. Estimated expenses for trips, \$10; fee, \$3.

#### HOME ECONOMICS EDUCATION

The following courses are offered in the Graduate School of Education for home economics teachers and extension workers. Descriptions of these courses will be found in the division of Education, pages 38 to 45.

- A 236. Creative Procedures in the Teaching of Home Economics in the Secondary School
- A 169a. Administrative Problems of the Homemaking Teacher
- A 249b. Seminar in Home Economics Education
- B 276c. Curriculum Laboratory.

## HOTEL ADMINISTRATION

In 1922 Cornell University established, with the cooperation and financial assistance of the American Hotel Association, a four-year course in Hotel Administration for high-school graduates desiring to enter the administrative departments of the hotel business. Many hotel proprietors and managers, who have been unable to take a four-year university course, have asked for shorter courses with less formal entrance requirements.

To meet this demand, all Summer Session work in Hotel Administration is given in unit courses, either one or two weeks in length. A circular giving full details of these courses will be issued about April 15. For this circular or for other information about the work in this department, address Professor H. B. MEEK, Martha Van Rensselaer Hall, Cornell University, Ithaca, N. Y.

The first unit courses in this department begin on June 24. All courses are offered at the undergraduate level. Since these courses are planned chiefly as refresher courses and are not designed to integrate with any program looking toward a degree, academic credit is not ordinarily granted for them. Students who have met the regular admission requirements may, however, receive credit towards the bachelor's degree if they indicate at the time of registration their intention to work for such credit and secure approval thereof.

## REQUIREMENTS FOR ADMISSION

Anyone employed in hotel work is eligible for admission. Prospective students will be required to present evidence of good character, of sincerity of purpose, and of interest in hotel work. It is distinctly to the advantage of prospective students to file applications early, in any event not later than June 15.

## COURSES OF INSTRUCTION

- H 11. **Hotel Operation.** Credit one hour.
- H 12. **Institution Organization and Administration.** Credit two hours.
- H 13. **Fraternity House Management.** Credit one hour.
- H 15. **Hotel Promotion.** Credit one hour.
- H 18. **Personnel Methods.** Credit one hour.
- H 22. **Food Preparation.** Credit two hours.
- H 24. **Institution Menus.** Credit one hour.
- H 25. **Hotel Stewarding.** Credit one hour.
- H 26. **Hotel Menus.** Credit one hour.
- H 31. **Elementary Accounting.** Credit three hours.
- H 32. **Hotel Accounting.** Credit three hours.
- H 33. **Interpretation of Hotel Statements.** Credit one hour.
- H 36. **Food and Beverage Control.** Credit one hour.
- H 41. **Hotel Engineering.** Credit two hours.
- H 71. **Hotel Housekeeping.** Credit one hour.
- H 72. **Institution Housekeeping.** Credit one hour.
- H 73. **Institution Textiles.** Credit one hour.
- H 81. **Hospital Operation.** Credit two hours.

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Because the edition of this Announcement is limited, persons planning to register in the Summer Session are asked to bring their copies with them.



*The gorge of Fall Creek borders  
the campus, and its cliffs look  
out over Cayuga Lake and the  
valley at its head.*



*Goldwin Smith Hall is the main building of the College of Arts and Sciences. It is named in honor of Goldwin Smith (1823-1910), who resigned a fellowship of University College, Oxford, and accepted the chair of English History at Cornell University in 1868.*